



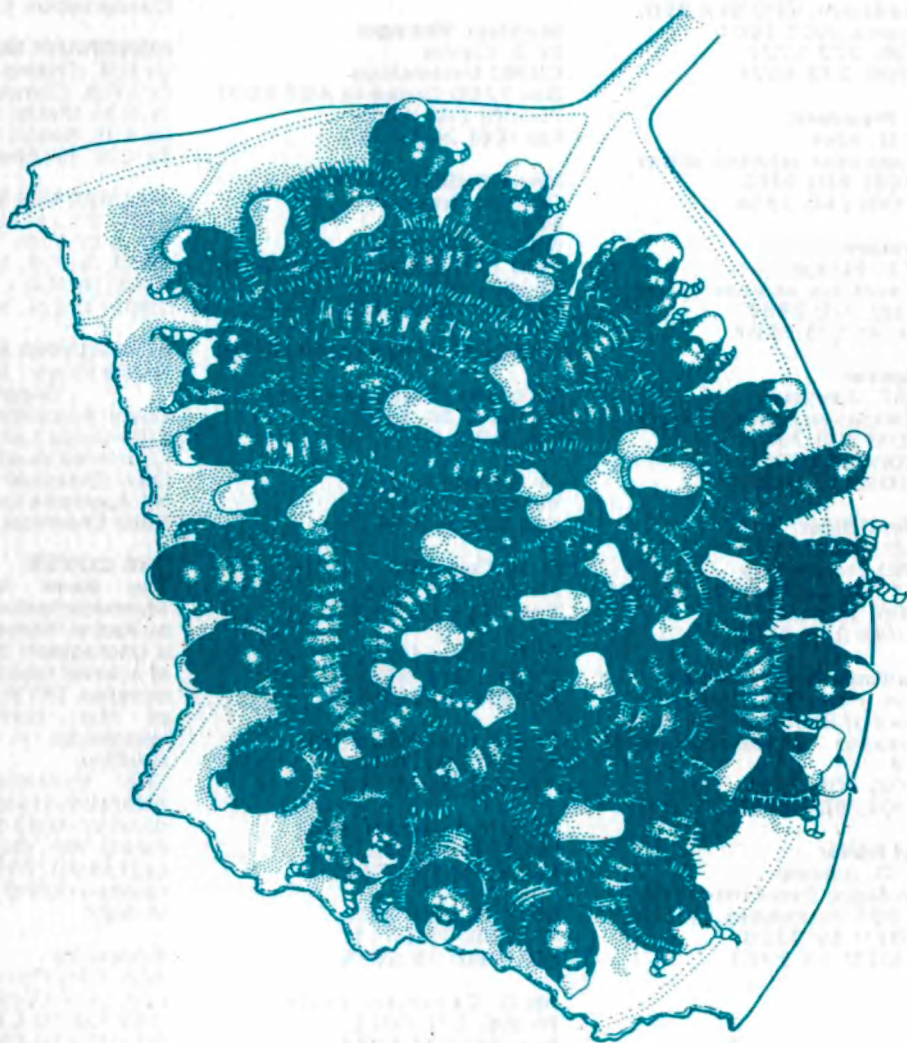
MYRMECIA



News Bulletin of the Australian Entomological Society Inc.

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THE COVER

The cover for this year's
Myrmecia features an illustration
by Karina Hansen McInnes from
a photograph by Penny Gullan
of a larval mass of *Perga affinis*
complex (HYM: Pergidae), one
of the common species
complexes in the Australian
sawflies.

The formation of these
defensive rosettes, which are a
common sight on eucalypt trees
during the day, is known as
cycloalexy. The larvae form the
rosettes during the day and feed
at night.

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ADVERTISING RATES FOR MYRMECIA

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These rates apply to camera-ready copy supplied by the advertiser. Where this is not supplied, an additional charge may be made for the layout.

In addition, loose inserts and pamphlets supplied by the advertiser will be included in a mailout for \$100 per item. The items should be of a size which will not project beyond the pages of *Myrmecia*.

NOTICE

Statements made in *Myrmecia* do not necessarily represent the views of the Australian Entomological Society. Items printed herein should not be reproduced without permission of the author of the material.

COPY DEADLINE FOR NEXT ISSUE

Material for publication in the May 1994 issue of *Myrmecia* should be in the hands of the Editor at the address below by **Friday 22 April 1994**. Submission on IBM-compatible floppy disk in a major word processing format is preferred. Details are available from the Editor.

Murray FLETCHER

News Bulletin Editor

Biological and Chemical Research Institute
PMB 10, Rydalmere, NSW 2116

Copy can also be sent to the editor via email to the address fletchm@quord.agric.nsw.gov.au

EXECUTIVE REPORT

Meetings

The Core Executive met on 25 November 1993 and 20 January 1994.

New Members

We welcome the following new members to 1994 membership:

Elected 25 November 1993

Mr E. COSCARELLI, Box 1413, Mount Gambier SA 5290. Eugene is a Management Consultant with interests in the Lepidoptera and Arachnida.

Elected 20 January 1994

Mr N.J.S. BEVERIDGE, BSc, 116 Richmond Rd, Grey Lynn, Auckland 1002 NEW ZEALAND. Nicholas is a Manager of Parks, with particular entomological interests in the Lepidoptera.

Miss C. HILL, BScAgr(Hons), Dept of Crop Protection, Waite Campus, University of Adelaide, PO Glen Osmond SA 5064. Catherine is a full-time PhD Student in the above Dept.

Ms D.S. PACHO, BSc, Bairro Coop, Rua C No. 235, Maputo MOZAMBIQUE. Deolinda is a professional entomologist with an interest in biological control.

Resignation from Membership

(Received with regret)

Dr S.C. BARKER

Dr E. BRUZZESE

Dr P.E. COOMBE

Dr & Mrs I.M. COUPAR

Dr I.C. CUNNINGHAM

Mr S. ELLIS

Mr R.W. KERR

Dr K.H.L. KEY

Dr D.J. PRINCE

Dr K.D.Z. SAMUELS

Change of Address or Title

Dr I. ABBOTT, Dept of CALM, Como WA 6152

Mr J.H. ARDLEY, to Retired Membership

Mr G. BARDEN, 16 Dettmann Close, Isaacs ACT 2607

Ms J.J. BEARD, 116 Barton St, Everton Park QLD 4053

Prof. R.A. BEAVER, 161/2 Mu 5, Soi Wat Pranon, Tambon Donkaew, Ampur Maerim, Chiangmai THAILAND 50180

Mrs K.R. BLANCHE, School of Biological Sciences, Macquarie University NSW 2109

Mr B. CANDUSIO, Insectarium of Victoria, 221 High St, Heathcote VIC 3523

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Dr G.P. CLOSS, Division of Environ. Manag. & Ecology, La Trobe University, PO Box 963, Wodonga VIC 3689

Mr E. COSCARELLI, Box 1413, Mt Gambier SA 5290

Mr D.F. CROSBY, PO Box 32, Darling South VIC 3145

Mr G. DANIELS, Dept of Entomology, University of Queensland 4072

Mr R.W. DRUEKE, 10 Holland Hill, No. 04-07 Holland Hill Mansions, SINGAPORE 1027

Mrs A. GREENER, GPO Box 1997, Hobart TAS 7001

Dr B.H. GUNN, Ciba Geigy Australia Ltd, PO Box 4, Wentworthville NSW 2145

Dr D.S. HORNING, 'Wyllella', RMB 902, Loomberah via Tamworth NSW 2340

Dr J. JACKSON, 38A Bath St, Battery Point TAS 7004

Mr J. KITT, Dept of Crop Protection, Waite Campus, University of Adelaide, PO Glen Osmond SA 5064

Dr L.A. LOBRY DE BRUYN, Dept of Ecosystem

Management, University of New England, Armidale NSW 2351

Rev A.R. LORMER, to Retired Membership

Dr P.J. MARTIN, Pitman-Moore Aust Ltd, PO Box 777, North Ryde NSW 2113

Mr G.F. MAYWALD, CRC for Tropical Pest Management, Gerhrmann Labs, University of Queensland 4072

Assoc. Prof. F.J.D. McDONALD, Dept of Crop Sciences, University of Sydney, Sydney NSW 2006

Dr G. McDONALD, Plant Sciences and Biotechnology, Victorian Dept of Agriculture, La Trobe University, Bundoora VIC 3083

Mr G.A. MILLEDGE, Museum of Victoria, 71 Victoria Cres, Abbotsford VIC 3067

Dr G.M. NAPIER, CSIRO Division of Water Resources, PMB 3, PO Griffith NSW 2680

Prof. A.W. OSBORNE, Aquaculture, University of Tasmania, PO Box 1214, Launceston TAS 7250

Mr H.C. PARK, to Student Membership, 355-3 (2/3), Sejeong1 Dong, Dong-Ku, Busan KOREA

Dr E.J. REYE, RV 'Coolooloa' c/o Entomology Dept, University of Queensland 4072

Dr A.M. RICHARDS, 120 Colherne Court, Old Brompton Rd, London SW50EA ENGLAND

Miss L. RODGERSON, to Full Membership

Dr H.A. ROSE, Dept of Crop Sciences, University of Sydney, Sydney NSW 2006

Mr A.M. SCRIVENER, 212/1-9 Meager St, Chippendale NSW 2008

Mr G.B. SMITH, BG Animal Health, Bayer Aust Ltd, PO Box 903, Pymble NSW 2073

Ms M. TIO is now Ms M. HUMPHREY

Mr J. TRUEMAN, to Full Membership

Mr E. TURAK, 68 Westbourne St, Petersham NSW 2049

Ms C.A.P. URQUART, State Forests of NSW, Biology Section, PO Box 100, Beecroft NSW 2119

Miss H. WALLACE, to Full Membership, c/o DPI, M5108, Ashfield Rd, Bundaberg QLD 4670

Dr D.E. WALTER, Dept of Entomology, University of Queensland, QLD 4072

Dr A.J. WAPSHERE, to Retired Membership

Mr P.D. WEBB, 35 Poinciana St, Inala QLD 4077

Mr J.E.R. WEISS, to Full Membership

Dr A. YORK, State Forests of NSW, Biology Section, PO Box 100, Beecroft NSW 2119

From the Minutes**Vale**

The Executive recorded with regret the passing of **Dr J.A.L. (Tony) Watson** and eminent (non-member) entomologist **Dr N.B. Tindale**.

Arrangements for revising and enlarging the Society's *Directory of Australian Entomology* are proceeding, with **Dr T.C.R. White** agreeing to be Convenor of an Organising Committee, and with letters being sent to contacts in 12 South-West Pacific countries inviting them to contribute to an expanded publication which may be titled *Directory of South-West Pacific Entomologists*.

Useful comments have been obtained from Regional Councillors and other members regarding suggestions to change the name of the Society's Journal, following changes to its format as approved at the 1993 Annual General Meeting in Cairns. Any definite proposals to change the name of the Journal will require a change to the Society's Constitution as voted on by financial members. Alternative names suggested by members are: Australian Journal of Entomology, Journal of Australian Entomology, Australian Entomology and Australasian Entomology.

Dr Alan Andersen, CSIRO Wildlife and Ecology, Darwin, has been selected as a fourth Technical Editor to join the editorial team of the Society's Journal.

Ms Angela Gackle, CSIRO Information Network, Adelaide, joined the Core Executive after its November meeting for an informal discussion on ideas and ways of promoting entomology.

Paul MADGE
Hon. Secretary

Directory of South-West Pacific Entomologists

At the end of this issue is an announcement about a new edition of this valuable publication. An insert is included in this issue of *Myrmecia* to glean details from members.

Please take a moment to fill out this sheet and return it to Tom White as soon as possible. After all, you want to be included, don't you?

OBITUARY Dr J.A.L. Watson

It is with sadness that I report the death of Tony Watson. The obituary which follows was prepared by **Brian Fletcher**.

John Anthony Linthorne Watson, a Chief Research Scientist with the CSIRO Division of Entomology and a foundation member of the Australian Entomological Society, died in Canberra on 4 December 1993 at the age of 58, following an operation.

Tony, as he was known affectionately by his colleagues, was an outstanding scientist and an internationally recognised leader in his specialist fields, the biology, taxonomy and management of termites, the biology and taxonomy of dragonflies and the biology and taxonomy of Thysanura, a group of primitive insects known commonly as silverfish.

Tony was born in Perth, where he completed his schooling and undergraduate studies. After obtaining an honours degree at the University of Western Australia, Tony carried out his post-graduate studies at Cambridge University under the supervision of Professor Sir Vincent Wigglesworth and was awarded a PhD in 1962 for his research there on the endocrinology, reproduction and development of silverfish. It was during his time at Cambridge that Tony met and married his wife Barbara who was a student in the Department of Zoology.

Tony then worked for a period on silverfish in Prof H.A. Schneiderman's laboratory at Western Reserve University, USA, first as a Postdoctoral Fellow and then as a Visiting Assistant Professor, before returning to Australia as a Queen Elizabeth II Fellow in 1965.

His studies on silverfish confirmed the morphological similarities between the endocrine systems of Thysanura and Pterygota, and provided for the first time experimental evidence that moulting, reproduction and postembryonic development of silverfish depend on similar endocrine mechanisms to those of higher insects, even though uniquely for insects, their moulting and reproduction continue throughout adult life.

As a Fellow at the CSIRO Division of Entomology in Canberra, Tony completed his studies on the endocrinology of the Thysanura and wrote the chapters on Apterygota for the first

edition of "The Insects of Australia". In 1967 he joined the Division's Termite Group and became its leader in 1970. Already a recognised expert on Thysanura when he joined the Division, Tony's involvement with termites was to dominate the remainder of his research career and resulted in the appearance of a wealth of new information about this extremely important insect group.

He published extensively on their biology and taxonomy in a series of papers and monographs and directed much of the research aimed at finding effective and more environmentally friendly methods of controlling them. His research papers dealt with a variety of topics including the development and function of termite castes, establishment of incipient colonies, behaviour, pathology, effects of termites on plastics and other materials, the biology of harvester termites, inquilines found in termite nests and numerous papers on termite taxonomy. The 2nd edition of "Termites in the Canberra Region" and "The Atlas of Australian Termites" are two recent major publications in which he played a key role.

Tony's seemingly boundless enthusiasm for extending our knowledge of Australian insects also resulted in him becoming the leading expert on Australian dragonflies, a group he first became interested in while still at school. Altogether, he published over 50 research papers on dragonflies, covering their taxonomy and other aspects of their biology including functional morphology, larval

biology, faunal relationships and their potential role as biological indicators of pollution. In addition, he was the principle author of the recently published comprehensive handbook, "The Australian Dragonflies". Many of the beautiful coloured photographs featured in the book were taken by Tony on his field trips and reflect the appreciation

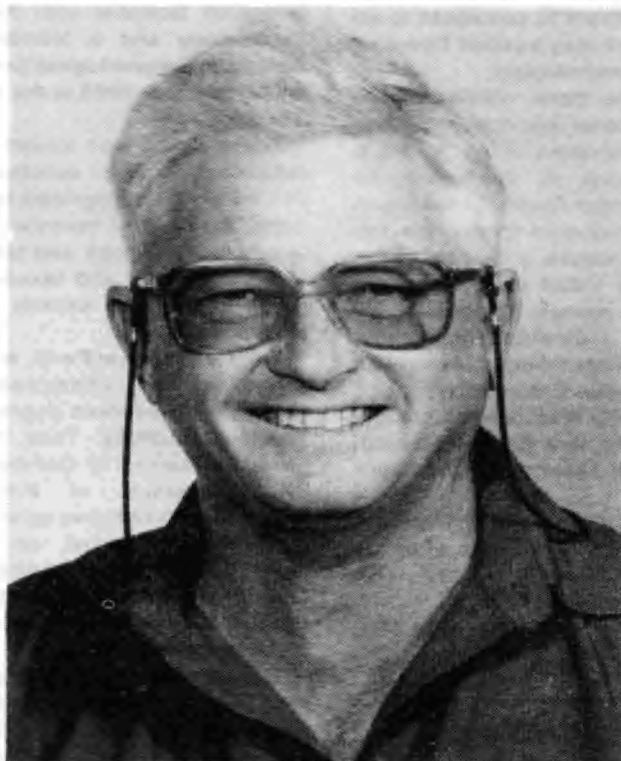
he had of insects as living creatures as well as objects of scientific study.

During his career, Tony contributed to entomology in a number of other ways. He served on the editorial advisory committee of the Australian Journal of Zoology, the Standards Association of Australia Committee on termite treatments, the Commonwealth and States Committee on the West Indian drywood termite and a number of Commonwealth and International review panels relating to termites and other entomological matters.

Over the years, Tony's contributions to entomology have been recognised by a

number of awards including the inaugural Ian Mackerras Medal for excellence in entomology in 1984, and election as a member of honour of Societas Internationalis Odonatologica in 1989.

Tony was a scientist with enormous talents, a tremendous depth of knowledge in his chosen fields and high ideals which he always strove to maintain. His death has robbed Australian entomology of one of its finest practitioners but his many publications will remain as a lasting monument to his skills and contributions to science.



Dr J.A.L. (Tony) Watson [photo: John Green]

Dr M.M.H. Wallace Dr N.B. Tindale

It is also my sad duty to report the deaths of **Dr Murray Wallace**, formerly of CSIRO Entomology in Canberra and **Dr Norman "Tinny" Tindale**, formerly of South Australia, but more recently of Palo Alto, California.

Full obituaries for these two noted entomologists will appear in the next issue of *Myrmecia*.

LETTERS TO THE EDITOR

24 November 1993

Dear Editor,

I wish to thank the Australian Entomological Society for making available the Phil Carne Award for Scientific Writing. It provides a unique opportunity for undergraduate students to submit a research paper for peer review at an early stage of their scientific training and, at the same time, to gain the valuable experience of attending and presenting this research at a scientific conference. I have certainly benefited from this experience and am grateful and honoured for the opportunity to have done so. In retrospect, too, I will probably be the last of the student prize-winners to have been fortunate enough to have met the name-sake of the award.

I would also like to express by sincere appreciation for the guidance and continued encouragement through my research project from my supervisor, Dr Peter Miles, and to other colleagues at Waite Institute. Peter is retiring at the end of 1993 and his enthusiasm and frenetic laboratory manner will undoubtedly be missed.

Gary TAYLOR
Waite Institute
University of Adelaide

17 December 1993

Dear Editor,

I am writing to introduce you to the unique new "Naturalists' Forum" which has just opened on the worldwide CompuServe network, dealing with, at first, entomological matters including databases (ultimately including images and sounds), gossip, conservation & legislation issues, and specimen exchange/sale information (where legal).

In its present form, a number of useful features are available. For example, you can download a

catalogue of Australian Cleridae or Lucanidae, pictures of Australian beetles (as *.GIF files), zipped dBase files of other entomologists' addresses, or the DELTA program (which is capable of writing an identification key). You can also offer sale or exchange of your insects etc. Many more features will be added as the Forum develops. But in order to develop, the Forum needs regular users.

Later, the Forum will include botany, birds and reptiles etc, palaeontology thereof, etc. I hope that this will initially become a major forum for entomologists, and later for all natural history workers anywhere in the world who wish to communicate or obtain/exchange information on insects, plants and animals. I am writing to extend to you an invitation to join the Forum. This is a very exciting opportunity. Any entomologist with access to a computer and modem can communicate with other entomologists all around the world at every hour of the day. The cost of using the service is minimal considering you will have the power to access vast amounts of information and many correspondents, even simultaneously. The CompuServe software program (WINCIM, available free from CompuServe) runs under Windows (also available under DOS), and is extremely user-friendly.

At present, until the number of users becomes substantial, Naturalists' Forum is running as a section of the CompuServe Pacific Forum. The command to access it is GO PACFORUM, then select Naturalists' Section. To get this service going properly, I need your help. Join Compuserve, and use the Forum. Even in its infancy, Naturalists' Forum promises to provide a new standard of information exchange for entomologists and all naturalists. I sincerely hope that you will take advantage of the Forum, and I welcome any suggestions or criticisms that you might provide.

CompuServe is now available in Argentina, Australia, Canada, Chile, France, Germany, Hong-Kong, Hungary, Israel, Japan, New Zealand, South Korea, Switzerland, United Kingdom, USA and Venezuela and will soon be in other countries.

For further information, please leave mail for me on Compuserve, write to me or call me.

Vratislav Richard BEJSK
Phone: (02) 365 5253
Fax: (02) 369 3962
Compuserve: 76711,1261

ODONATA (DRAGONFLIES) FROM "HEATHLANDS" CAPE YORK PENINSULA, 10TH - 23RD MARCH, 1992

**Report to the Executive on AES Research Grant
awarded to Deniss M. REEVES (10 Janet Ct,
CAPALABA, QLD 4157)**

There was a time when, to me, Cape York Peninsula seemed an impossible destination. Then a miracle happened, or so it seemed - I was accepted by the Royal Geographical Society of Queensland to participate in its wet season expedition to the Cape in the beginning of 1992. The RGSQ was subsidising this trip in the interests of scientific research, and when my application for an amateur grant was approved by the Australian Entomological Society, my participation was assured. I was one of only a few non-professionals to take part, and for this opportunity, I am grateful to the AES for its partial funding grant.

AIM.

The primary aim of what I loosely termed "Project Odonata" was to list as completely as possible the species occurring in the area visited, i.e. as much of the area around the expedition's base at "Heathlands" (11°45' 10" S, 142° 34' 40" E) as possible in the two weeks available, covering as many different habitats as practicable. As a secondary project it was intended to attempt to collect mature larvae and breed them to adults for the ANIC collection of adults and associated exuviae. The time available did not allow me to execute my third aim, which was to photograph as many species in the field as possible.

METHODS.

Riverine habitats from North Alice Creek in the south to the Jardine River in the north and "Double Mouth" Creek in the east were surveyed, as well as stillwater habitats near some of these sites, and at "Heathlands" itself. These latter sites included farm dams, a shallow teatree lagoon, a small, boggy area of closed forest near the Dulhunty River and several shallow, ephemeral, roadside ponds. The headwaters of Bertie Creek, east and west of the "Heathlands" base were readily accessible and were visited on foot, particularly on the rare occasions when no vehicle was available to venture further afield. All species were taken

over, or near water, and several species also being collected or observed away from water.

Collection of adults was done with a butterfly net, with an extension handle attached for higher-flying specimens, whilst larvae were collected by dragging aquatic habitats with a pond net or the aerial net.

Captured adults were transported to base, live, in triangular glassine paper envelopes which were carried in a hard-walled belt-pouch to prevent damage. Identification was carried out in the field as far as possible, and all doubtful or unfamiliar specimens were checked against the keys of Watson *et al.* (1991) on return to base. They were killed after identification and dried by immersing in acetone overnight. (Colours fade if specimens are killed in the field and not then dried immediately). Residual acetone was evaporated by air-drying after which all specimens were stored in an airtight, vermin-proof, plastic box. As I had the use of a stereo microscope and electricity was provided nightly till 2200 hrs, this task was greatly facilitated, although I sometimes found myself still at it when the lights faded and died (depending sometimes on how long one lingered over dinner and a welcome cold beer!).

Larvae were transported to base individually in 50 ml plastic vials containing water and some plant material to which they could cling, then transferred to plastic take-away food containers, and fed with mosquito larvae and small tadpoles, both of which were available in abundance and accepted with relish. In several instances larvae accepted, rather less readily, maggots collected from pitchers of *Nepenthes mirabilis* (Lour.) Druce. Water was changed daily.

Only one species - *Neurothemis oligoneura* Brauer - was recorded by observation alone. One specimen was observed closely near the Dulhunty River crossing when my net was 50 m away in the vehicle! My net went with me always, thereafter!

RESULTS.

The 1991-92 wet season turned out to be more a "dry" - the "wet season that wasn't", due to a lower than normal summer rainfall. This was, however, a stroke of luck, as aquatic habitats would probably have been more extensive and less accessible if a normal "wet" had occurred. The paucity of rain, therefore, had the effect of concentrating the odonate population in the smaller areas of still water, and facilitating the negotiation

of the creeks and rivers both by vehicle and on foot.

Two species, *Nannophya australis* Brauer and *Trapezostigma propinqua* (Lieftinck), had not previously been recorded from the Cape York region of Watson (1974), although the former has been recorded from south-east NSW through to north-east Queensland, and the latter from north-east Queensland (SEN, NEN, SEQ and NEQ of Watson, 1974).

Extraliminally, *T. propinqua* occurs in "...New Guinea and Bismarck Archipelago" (Watson *et al.*, 1991) so its occurrence in the northern Cape York Peninsula region is really no surprise. A single specimen was taken at the Jardine River crossing. *T. propinqua* is a medium to large, reddish-brown dragonfly with clear wings which have narrow dark basal markings on the hindwings. It is similar to the more common *T. loewi* Brauer but the dark reddish-brown, basal hindwing markings are much smaller.

N. australis occurred in small numbers flying low over boggy seepages bordering small tributaries of Bertie Creek to the east of "Heathlands". It was more common on the second streamlet to the east, in a habitat which was referred to by Dave Rentz and others as the "Nepenthes meadows" as large numbers of *Nepenthes mirabilis* grew low on the ground, over a large area. Sunlit grasses and ferns provided perches for this, one of our smallest Anisoptera (c. 30mm wingspread). Although other suitable habitats occurred (the Jardine Swamps, and near Cholmondeley Creek, for instance) this species was not recorded elsewhere in the area. Females of this species are marked with black and yellow, becoming more or less pruinose bluish grey with age. Mature males are blue-grey on the thorax and abdomen, with the apical abdominal segments red.

Two males of *Macromia tillyardi* Martin were collected whilst flying up- and downstream on the Dulhunty River. Their flight is fairly strong, reminiscent of that of the brachytroneine aeshnids. They primarily required patience to net them, as they always seemed to stay just out of reach. A female taken on Cholmondeley Creek, however, was flying more swiftly and purposefully, and was netted more by reflex action than by planned expertise! A second, recently emerged, female was later observed near Cholmondeley Creek perching with its abdomen hanging vertically, aeshnid fashion. One male *Macromia viridescens*

Tillyard was collected upstream from the Dulhunty River crossing. Both species of *Macromia* have brilliant green eyes.

Only one gomphid species was encountered - identified tentatively as *Austrogomphus mjobergi* Sjöstedt. Males of the *A. arbustorum* Tillyard - *A. mjobergi* complex are difficult to identify with certainty unless taken *in cop.*, the females having quite distinct occipital and postoccipital armature. Watson (1991) places females from east-draining rivers in north-east Queensland in *A. arbustorum* and those from West Australia, the Kimberley, northern N.T. and the west-flowing Mitchell River in northern Queensland in *A. mjobergi*. Two males were taken on west-draining streams - the Dulhunty River and Cholmondeley Creek, the latter of which eventually flows into the Dulhunty. For the present the specimens concerned must be regarded as belonging to the *A. arbustorum-mjobergi* complex, though I have tentatively placed them in *A. mjobergi* as they were taken well west of the Mitchell River locality, and further north.

Females of the libelluline dragonfly, *Nannophlebia eludens* Tillyard, were observed ovipositing on two occasions in Cholmondeley Creek. Where logs or exposed roots had formed shallow, quiet backwaters close to the bank, the females flew in briefly and flicked their ova into the water before darting rapidly away. This species was also recorded sparsely from Gunshot, Bertie and North Alice Creeks.

A patch of rainforest swamp on the north bank of the Dulhunty River above the crossing was quite productive, providing my only records of *Teinobasis rufithorax* (Selys), *Petalura ingentissima* Tillyard and *Agrionoptera insignis allogenes* Tillyard. It also provided me with my first ever sighting of a Palm Cockatoo, which sat in a nearby tree regarding me with curiosity and neck-twisting, just as I was regarding him!

I first came across *Nososticta coelestina* (Tillyard), a small damselfly about 30+ mm long, generally bronze-black in colour, but with patches of bright blue on thorax and "tail", at Double Mouth Creek, where it is crossed by the road to Captain Billy Landing on the east coast. The creek was low, with a sandy bed and very shallow pools, barely flowing. In the dappled light under the overhanging vegetation, the brilliant blue marking on this insect (the male only - the female is much duller) appears as a small blue wasp, flying jerkily, now visible, now disappearing. Its blue "tail-light"

appears at first to be a second, even smaller, wasp. Then it emerges fully into a patch of bright sun and reveals itself as a dainty little damselfly. It has a close relative, *N. solitaria* (Tillyard), which has brownish-yellow markings replacing the blue. Collecting at this site was rudely curtailed after an encounter with a feral pig about the size of an African elephant!

The stock dam on "Heathlands" was the most productive habitat, 18 species being recorded - five coenagrionids, two lestids, three aeshnids and eight libellulids. The water in this dam was only approximately 50 cm deep and there was abundant aquatic vegetation. The water temperature during the day was uncomfortably high. The aeshnid *Gynacantha dobsoni* Fraser and the libellulid, *Tholymis tillarga* (Fabricius) were both observed in the late afternoon, the latter also in the early morning in low light levels. Females of the latter were observed ovipositing alone, flicking several batches of ova into the water then disappearing as quickly as they had come. Males hovered about 30 cm above the water surface, their milky-white wing patches rendering them conspicuous. *Anax guttatus* (Burmeister) was the largest species to be seen at the dam, and two or three were observed whenever the site was visited. Of rapid flight, they would zoom about 1 to 2 m above the water surface and the surrounding grassland, sometimes rising high into the air before returning to patrol the dam. Larvae of this species were collected from the dam and taken to Brisbane where they were successfully bred in an aquarium and fed on mosquito larvae and small mosquito-fish (*Gambusia affinis*). One male emerged on 4th April, 1992, a female on 9th April, 1992, and a second male on 7th May, 1992. Smaller libellulid larvae from the dam, taken to Brisbane, did not survive. A freshly emerged specimen of *Diplacodes bipunctata* (Brauer) with its exuviae, was collected at this site.

COLLECTING SITES.

Bertie Creek (11°49'10"S, 142°30'05"E) - rock creek bed with large holes ("4WD traps").
 Cholmondeley Creek (11°48'45"S, 142°29'55"E) - a narrow creek with white sandy bottom, thickly vegetated banks upstream, gradually thinning out downstream, falling over low rock cascades.
 Cockatoo Creek (11°39'10"S, 142°27'20"E) - a swift-flowing creek with broken rocky bottom,

banks well vegetated, approach steep.

"Double Mouth" Creek (11°30'00"S, 142°48'23"E) - where crossed by road to Captain Billy Landing - slowly running, shallow pools, sandy.

Dulhunty River (11°50'25"S, 142°30'10"E) - sandy crossing, upstream sandy/rocky bottom, downstream rocky cascade.

Dulhunty River (11°50'25"S, 142°30'10"E) - a small patch of "rainforest" on a boggy seepage running into the river on north bank, upstream of crossing.

Dulhunty River (11°50'25"S, 142°30'10"E) - a shallow melaleuca swamp on south side, mostly fringing vegetation, with evidence of foraging by feral pigs.

Gunshot Creek (11°43'20"S, 142°28'30"E) - swift flowing, narrow, steep to very steep banks, with fringing rainforest and an island of rainforest where the creek course divided and rejoined.

"Heathlands" dam (11°44'35"S, 142°32'15"E) - an agricultural dam on "Heathlands". Shallow, daytime water temperature high.

Jardine River (11°9'10"S, 142°21'15"E) - sandy crossing. Received specimens from Shane McEvey, but did not visit this site.

Jardine Swamp (11°10'00"S, 142°21'35"E) - extensive swamp with low heath vegetation, sedges, etc.

North Alice Creek (11°56'30"S, 142°31'25"E) - open, very shallow creek crossing, somewhat stony.

Pool 3 km S. of Dulhunty River (11°52'00"S, 142°30'30"E) - probably more extensive in a good wet season, a few teatrees. Very shallow.

SPECIES DISTRIBUTION.

KEY TO LOCALITIES.

AW	Away from water
BE	Bertie Creek
CH	Cholmondeley Creek
CO	Cockatoo Creek
DM	"Double Mouth" Creek
DU	Dulhunty River
DU ^N	Dulhunty River, north bank rainforest
DU ^S	Dulhunty River, south bank melaleuca swamp
GU	Gunshot Creek
HD	"Heathlands" dam
JR	Jardine River
JS	Jardine Swamp

NA North Alice Creek
PO Pool 3 km S. of Dulhunty River

Odonata: Zygoptera (Damselflies).

Family Coenagrionidae.

Aciagrion fragilis (Tillyard, 1906) DU^S HD

Agriocnemis sp. HD

Austroagrion exclamationis Campion, 1915
DU^S HD

Ischnura aurora aurora (Brauer, 1885) AW HD

I. heterosticta heterosticta (Burmeister, 1839)

GU HD

Pseudagrion ignifer Tillyard, 1906 BE CH GU

Teinobasis rufithorax (Selys, 1877) DU^N

Family Isostictidae.

Orosticta filicicola Tillyard, 1913 BE

Family Protoneuridae.

Nososticta coelestina (Tillyard, 1906)
BE CH CO DU GU

N. solitaria (Tillyard, 1906) BE CH CO GU

Family Lestidae.

Austrolestes insularis Tillyard, 1913 DU^S HD

Lestes concinnus Hagen in Selys, 1862 CO HD

Odonata: Anisoptera (Dragonflies).

Family Aeshnidae.

Anax guttatus (Burmeister, 1839) AW HD

Gynacantha dobsoni Fraser, 195 HD

Hemianax papuensis (Burmeister, 1839) HD

Family Gomphidae.

Austrogomphus ?mjobergi Sjöstedt, 1917 CH DU

Family Petaluridae.

Petalura ingentissima Tillyard, 1908 DU^N

Family Corduliidae.

Macromia tillyardi Martin, 1906 CH DU

M. viridescens Tillyard, 1911 DU

Family Libellulidae.

Agrioptera insignis allogenes Tillyard, 1908
DU^N

Diplacodes bipunctata (Brauer, 1865) AW CH HD

D. haematodes (Burmeister, 1839) BE DU PO

D. nebulosa (Fabricius, 1793) HD JR JS

D. trivialis (Rambur, 1842) BE

Lathrecista asiatica festa (Selys, 1879) HD PO
Nannodiplax rubra Brauer, 1868

AW BE CH HD JR JS

Nannophlebia eludens Tillyard, 1908

NA BE CH GU

Nannophya australis Brauer, 1865 BE

Neurothemis oligoneura Brauer, 1867 DU

N. stigmatizans stigmatizans (Fabricius, 1775)

AW BE CH DU HD JR PO

Orthetrum caledonicum (Brauer, 1865) HD

O. migratum Lieftinck, 1951 AW BE CH

O. villosovitatum (Brauer, 1868) DU

Pantala flavescens (Fabricius, 1798) AW BE

Rhyothemis resplendens Selys, 1878 JR

Tholymis tillarga (Fabricius, 1798) HD JS

Trapezostigma loewi Kaup in Brauer, 1866 GU HD

T. propinqua (Lieftinck, 1942) JR

ACKNOWLEDGMENTS.

My thanks are extended to The Australian Entomological Society for its grant which partially funded and greatly assisted my research into the odonate fauna of a small area of Cape York Peninsula, and to The Royal Geographical Society of Queensland for making the expedition to "Heathlands" a reality. The advice of Dr J.A.L. Watson, CSIRO, Canberra, on the directions that my research should best take was invaluable. I received a great deal of assistance from other members of the party who were helpful in locating and collecting specimens and whose companionship was most enjoyable - my sincere thanks.

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Deniss REEVES

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REPORT ON 1993 ANIC TECHNICAL TRAINING COURSE

The second ANIC Technical Training Course was held on 20-24 September 1993. Due to rave reviews of the inaugural course in 1992 (see *Myrmecia* 28(4): 17-19, etc.) this year's course was booked out. The course was to be limited to 15 participants but in the finish 18 were accepted. Even so, there were more applicants than places for them. Apart from a Queenslander, a Tasmanian and four South Pacific Islanders, students this year were all from NSW.

1993's program content and instructors roughly followed that reported by Genevieve Carruthers last year, but with minor scheduling differences. Acting on comments from the 1992 feedback questionnaire, Murray Upton and Geoff Clarke included a hands-on preparation session which gave participants a choice of one of several orders on which to practise for a couple of hours and an electron microscopy demonstration. An afternoon spent with Penny Gullan and Peter Cranston on slide preparation of Hemiptera and Diptera was also well received by participants. The adjustments improved an already first-rate curriculum. Another highlight was the course dinner at a local Vietnamese restaurant organised by Geoff. We were impressed with the quantity and quality of the food and it was especially good for camaraderie that so many of the staff members turned up. My classmates

agreed that \$250 was exceptionally good value for 5 days of tuition by experts. Because of the short course format, there are limits to the amount of fine tuning and additions ANIC can make to each successive year's program. Speaking as an aquatic biologist, I found the general introduction to the collection, preservation and storage of terrestrial insects and their allies an invaluable 'how to get started', especially the bit about wearing a hard hat while collecting at night to avoid damage from walking into tree branches. Thanks to all at ANIC who have made this course possible.

Roger BUTTERMORE
Curator of Invertebrate Zoology
Tasmanian Museum and Art Gallery
Hobart

REGIONAL NEWS

AUSTRALIAN CAPITAL TERRITORY

ANIC/ANU

A short contribution written in the final stages of conference organisation (50 chironomidologists are arriving in Canberra for a week of midges and sampling beer, wine and some of our aquatic systems). Our pleasure at receiving colleagues from all over the world is tempered by the absence of Lars Brundin, who died in November, aged 86. Lars' researches on biogeography led him to Australia during his survey of gondwanan Chironomidae, and his taxonomic work of that period remains a model.



Delegates and trainers at the 2nd ANIC Technical Training Course [photo: John Green, CSIRO]



Katie Strong demonstrating slide-making techniques at the 2nd ANIC Technical Training Course. [photo: John Green, CSIRO]

Furthermore, Lars played a pivotal role in explaining and advocating Hennig's phylogenetic methods, notably at the Canberra International Congress of Entomology where his presentation remains in many people's memories.

Elsewhere in this issue there is a tribute and obituary to **Tony Watson** - suffice it to say that he will be greatly missed by the Australian aquatic biologists and the whole entomological community. As the Murray Darling Freshwater Research Centre newsletter observed, Tony pioneered the training of aquatic biologists in the taxonomy of the odonates, making them accessible in the immature stages for the first time -- a valuable model for interaction between taxonomists and the users of the information.

The next generation of entomologists is coming along nicely, if the Australian National University 1993 cohort is anything to go by. First class honours were attained by **Kendi Davies** (looking at beetle communities in the Wog Wog patches) and **Brett Melbourne** (who assessed Rapid Biodiversity

Assessment as a conservation tool), both of whom are applying their newly-acquired skills on the Macquarie Island fauna, ahead of taking up scholarships to remain in ANU. **Mick Smith**, also a first class honours, is converting his honours thesis on what happens when acid input to a Kakadu stream is "turned-off" to a paper for the chironomid meeting. Mick is also straightening out **Richard Norris's** (Canberra University) chironomid vouchers. Well done also to **Kirsty Blair**, who looked at rabbits and fleas with CSIRO Division of Wildlife and attained an upper second class degree.

The present intake of honours students includes **Stephen Loiterton**, studying aspects of antlion behaviour, **Margaret Hurst**, studying the hybrid zone of the grasshopper *Callidia captiva* and **Lyndall Briggs**, looking at the evolution of exons in some esterase gene of *Drosophila*. And still on the theme of youth, a stream of secondary school children from the CRA national science summer school have been touring ANIC, and receiving

talks and information from **Eric Rumbo** on the pheromone group's research.

The youngest mention is of **Erin Alexander**, born to **Leane Regan** and **Geoff Clarke** on 17th December: Geoff is spending his waking hours measuring asymmetry - of chironomids exposed to insecticides in **Angela Arthington's** artificial experimental channels against a deadline of presenting the data at the chiro meeting.

Details of what else is happening in ANIC are a bit hazy due to the preoccupation of your correspondent with proofing and indexing one book, editing another and organising a conference. However, **Jo Berry's** imminent conclusion to her PhD is noted, and we have farewelled her for her return to New Zealand. Just before Jo left, **Marie-Claude Larivière**, the Canadian hemipterist now in New Zealand visited to participate in **Mike Dallwitz's** DELTA course. We have had, or are due shortly to receive, visits also from **Ros Blanche** on gall insects, **Andy Austin** on matters hymenopterological, **Jack Armstrong** on his beetle collection, **John Macdonald** on sawflies, **Paul Zborowski** concerning CYPLUS, **Phil Weinstein** (visiting **David Rentz** to discuss their shared

interests in cavernicolous insects) and **Gordon Gordh** was here to discuss DELTA technology and Hymenoptera. **Mike Irwin** (Illinois) is back again, and is out in the field with **David Yeates**, avoiding fires and seeking xerophilic flies. **Ebbe Nielsen** is in Buenos Aires on IUCN business.

Well, I'm just off to lunch with **Gerry Cassis** and **Pavel Štys** and chironomid conference attendee **Odwin Hoffrichter** (Freiburg, Germany). The alcohol consumption is rising alarmingly and the conference isn't even underway the comatose passenger on the late January flight to Perth for the Limnologist's meeting is your correspondent...

Peter CRANSTON
Regional Councillor

It was the editor's good fortune to be in Canberra in early December at the time of the ANIC Christmas lunch which was combined with a celebration for Dr E.C. Zimmerman's 80th birthday. For his birthday, Zimmie was presented with the first copy of the third published volume of "Australian Weevils" (see photo).

Zimmie began his study of Pacific Island weevils



Ebbe and Zimmie at the ANIC Christmas lunch [photo: Judith Hull, CSIRO]

in 1930 for the B.P. Bishop Museum in Hawaii. Later he worked at the Natural History Museum in London and while there in 1972 began his "Australian Weevils" monograph. He joined the ANIC in 1973 where he is now an Honorary Research Fellow. Zimmie is the author of nine volumes of "Insects of Hawaii" and a large number of research papers and will have published over 10,000 pages of scientific research when "Australian Weevils" is completed. Ebbe Nielsen pointed out at the ANIC lunch that this will represent a world record for scientific publication.

CSIRO Entomology

Entomologists were well represented in the 1993 CSIRO Medal awards. The CSIRO Medals were established in 1985 to honour excellence in Australian research to benefit the nation. Three medals are awarded to CSIRO staff to mark outstanding achievement or leadership. One additional medal is awarded to an external person or team for outstanding research achievement.

Of the five awards for 1993, two went to entomologists and we offer our congratulations to:

Robin Bedding (CSIRO Entomology) for outstanding work on the use of nematodes to control insect pests and

Robert G. Winks (CSIRO Entomology) for outstanding contribution to the Australian grain industry.

NEW SOUTH WALES - Metropolitan

Army Malaria Research Unit

Tony Sweeney went to the United States in August to attend the Society of Invertebrate Pathology meeting in Asheville, North Carolina and then visited the USDA Medical and Veterinary Entomology Research Laboratory, Gainesville, Florida and the Boyce Thompson Institute at Cornell University in Ithaca, New York. In September he participated in the AIDAB sponsored malaria control project feasibility study of Vietnam.

Liz Brooke attended the Cairns meeting and was fortunate to catch up with some old University friends. Liz has just submitted her Masters Thesis and is now in the throes of writing up some of the material for publication.

Bob Cooper recently completed a reconnaissance trip to Papua New Guinea for the next mosquito field survey, this one will be conducted in the Papuan Gulf area. While in PNG

Bob attended the PNGIMR Conference held in Madang, an excellent meeting and a chance to renew some old acquaintances and revisit some old haunts.

Department of Medical Entomology

University of Sydney at Westmead Hospital

In September/October **Richard Russell** and **Peter Wells** travelled to the USA for discussions with colleagues in the arbovirus laboratories at the University of California and the California Department of Health at Berkeley; they also visited the arbovirus field station at Bakersfield and Richard visited a number of Mosquito Abatement Districts to update on saltmarsh pest mosquito control with respect to a consultative/study program recently instituted at the Homebush Bay (Olympic Park) area in Sydney. Richard and Peter then attended the International Congress of Vector Ecology at San Diego, presenting papers on recent activity of Ross River virus and its relation to vector ecology, and the results of vector competence studies with various strains of Ross River virus and various populations of vectors, respectively. Richard then went on to Cayenne, French Guyana, where he is an adviser to the Institut Pasteur for research programs on malaria and dengue. After returning to Australia, Richard attended the Australian Tropical Health and Nutrition Conference in Brisbane where he presented a paper on the Westmead Lyme disease research program. Richard has been appointed to the NSW Government's Environment Expert Review Committee for the management and development of the Homebush Bay area for the Olympic Park project and, with **Steven Lindsay** and **Merilyn Geary**, he has initiated routine mosquito surveillance in the area during 1993/94; it promises to be an interesting few years with the development for the year 2000 Olympics.

Steven Lindsay, the Mosquito Control Officer for the NSW Health Department since 1990, has been transferred to the Medical Entomology Department at Westmead. He will continue to advise local government in the Sydney Metropolitan area, and assist NSW regional health authorities with matters related to mosquito and other pest control.

Merilyn Geary participated in the Entomological Technical Training Course conducted in September by the ANIC, CSIRO Division of Entomology in Canberra.

Stephen Doggett attended the Australian Society

of Microbiologist's Annual Scientific Meeting at Perth, Western Australia and presented a paper tolling the death knell on Lyme disease in Australia. Stephen then spent an enjoyable week in the WA Arbovirus Laboratories at the Queen Elizabeth II Medical Centre, University of Western Australia comparing the laboratories' respective arbovirus monitoring programs.

Collaboration between the Arbovirus Laboratories in WA and NSW has resulted in the updating and modification of the virus isolation methods by both laboratories.

John Clancy has submitted his Masters Thesis on insects and spiders in mangrove and saltmarsh communities and is looking forward to a few weeks extra sleep.

K. Dhileepan, from the Victorian Department of Agriculture's Institute of Animal Science visited for 2 weeks in November. Dr Dhileepan is responsible for the mosquito surveillance program for the Department of Health in Victoria.

Charles Morris (University of Florida, Vero Beach) and **Pat Dale** (Griffith University, Brisbane) visited in November. Charlie, on vacation in Australia, was taking the opportunity to catch up with colleagues in the 'moskie world' and visit habitats with Pat.

Gisli Mar Gislason, from the University of Iceland, who undertook a sabbatical with us during 1991, will be returning for a few months from late January.

CERIT, Bioscience

University of New South Wales

It was very busy at CERIT prior to the Christmas break, with an exodus of most people for holidays. A few worked over the break, to feed the stock and finish experiments. **Julie-ann Short** was one of those who held the fort and she will get her rest

when **Merilyn Baker** (Pierce) comes back from maternity leave at the end of January. CERIT'S other **Julianne (Farrell)** who was a voluntary worker for some time is now employed full time building new mosquito testing chambers and carrying out experiments on mosquito control products. She also assists **Martin Shivas** with blowfly culturing, replacing **Stephen Fellenburg** who has moved to the Medical Research Institute (part of Prince of Wales Hospital). Stephen assures us that he will maintain his entomological interests, especially his fascination with phasmids.

Martin Shivas is testing a large number of field strains of *Lucilia cuprina* sent to him by **Gary Levot** (NSW Agriculture) as part of their joint Wool Research and Development Corporation supported project. This project terminates within the next six months, so Martin will soon be writing it up. **Chris Orton** spent most of the pre-Christmas period writing grant applications, with some success we gather and **Patrick O'Rourke** has had the aerosol testing chamber turning over continuously to get rid of a back-log of compounds.

Rowena Bower, CERIT'S honours' student obtained first class honours for her thesis on mosquitos and the effects upon them of Insect Growth Regulators. Congratulations. She obtained holiday

employment with Ryde Council, monitoring mosquito control in the Municipality and assisting with education of the public in regard to mosquito biology. **Huie Nguyen** became father of a little girl, Jasmin, on the 5th January. He and his wife were informed that they were having a boy the wonders of medical science.....

Take note that several thousand of CERIT'S flies, *Chrysomya rufifacies*, *Calliphora dubia* and *Musca domestica*, (to be exact) are to become film stars beside **Ruth Cracknell** in a film "Spider and

University Entomologists PLEASE NOTE

Jenny Anderson would like to let entomologists know that she has started collecting entries from Institutions throughout Australia for the **List of Postgraduate Projects in Entomology** to be published in the May 1994 issue of *Myrmecia*.

It is proposed to prepare the list every two years, unless a volunteer offers to do it annually!

So please start getting your list together and send it to Jenny at:

**CERIT
University of NSW
PO Box 1
KENSINGTON NSW 2033**

Rose".

We had many visitors who came to discuss product testing and development with **Chris Orton** and other senior staff and we answered many enquires from the public on a wide range of entomological subjects.

John CLANCY
Regional Councillor

Australian Museum

Max Moulds went on his annual outback summer walkabout, this time to the McIlwraith Ranges in Cape York Peninsula. Supposedly the Ranges were too wet, but when he went south he found the Atherton Tablelands too dry.

Brad Sinclair, a Canadian government NSERC post-doctoral fellow, will be at the Australian Museum for the next 2 years. He is working with **Dan Bickel** on the systematics of empidoid flies. His particular interest is the subfamilies Clinocerinae and Ceratomerinae. In this latter group, *Ceratomerous* is a common and abundant genus in Australian rainforests, and it shows a classical Gondwanan distribution. He had excellent collecting of these taxa in the beautiful cool streams of Barrington Tops, where he and Dan collected in late December. Brad was previously at the Biosystematics Research Institute, Ottawa, where he completed his Ph.D. at nearby Carleton University.

Dr Pavel Štys, of Charles University, Prague, Czech Republic, has been a Visiting Fellow at the Australian Museum for the past three months. He is working on the morphology of stink glands in Heteroptera with **Gerry Cassis**, as well as pursuing his many other interests in Heteropteran systematics (especially the Enicocephalidae), and insect morphology and evolution. He and Gerry went on a collecting trip to Queensland in November-December 1993. His energy and wide knowledge of insects has been an asset to the entomology section during these past 2 months.

Lou RODGERSON
Regional Councillor

Biological and Chemical Research Institute NSW Agriculture

Alan Cliff visited Perth to attend an International Conference on Modelling and Simulation in early December at the University of Western Australia. He presented a paper on MPESTYLD2, a model for use in predicting the effects of farm

management and pests on yields in mushroom farms. He might be good at developing modelling programs but perhaps someone else should choose the name! **Mary Ann Terras** has been made an honorary member of the Australian Mushroom Growers Association in January. This is in recognition of her role in the Mushroom Research and Development Unit at BCRI.

Murray Fletcher, Angie Condello and Max Moulds (Australian Museum) visited Canberra to initiate planning for the 9th International Auchenorrhyncha Congress to be held in Sydney in 1997. **Max Day** (CSIRO) and **Mark Stevens** (NSW Agriculture, Yanco) were also at the meeting. We managed to enveigle our way into the ANIC Christmas lunch (see picture, page 12) while we were in Canberra.

The interception of a single specimen of *Mellitiphus alvearius* (Berlese), a mite associated with pollen in bee hives, in a sample of bees exported to Korea has created temporary havoc with bee exports from Australia. Surveys of hives throughout the central west of NSW were initiated with **Danuta Knihinicki** landing the job of examining hundreds of sticky traps for rogue mites. The interception also brought Prof **Kun-Suk Woo**, Director of the Institute of Korea Beekeeping Science, to Australia to examine the bee industry in detail before reporting to the Korean Government on the status of the Australian industry. It would appear that the mite does not pose a threat to bee hives and it is hoped that normal relations with the Korean beekeepers will be resumed shortly. While in Australia, Dr Woo was able to catch up with **Se Pyong Kim** (CSIRO Entomology), an old University chum.

Peter Gillespie has now completed surveys of sticky trap samples for the presence of Western Flower Thrips in the Sydney region and reports that the species is still restricted to three properties in the mid-Dural area. **Victor Rajakulendran** has become involved in a coordinated national approach, headed by **Nik Monzu** (WA Dept of Agriculture), to develop a research program on the species.

Liz Brooke has started a brief term with **Grant Herron** to screen the species for resistance. **Laura Jiang** has developed a technique for rearing broad mite, *Polyphagotarsonemus latus*, which will allow Grant to develop a laboratory bioassay method for this pest of horticulture.

Martin Horwood has had a major success in

attempts to eradicate underdosing during pre-slab termiticide applications by pest controllers, featured in an episode of "A Current Affair" in 1987. Martin's use of a soil testing protocol developed for this purpose was vital evidence in ensuring a conviction of a pest controller. This test case has now set a precedent for prosecutions based on evidence gathered using the soil testing protocol. The victory should assist with the passage of several other similar prosecutions currently underway, thereby helping to combat the underdosing problem.

Myint Swe, an FAO Fellow from Myanmar, is currently at BCRI working with **Victor Rajakulendran** learning techniques for researching and developing biological control of vegetable pests.

NEW SOUTH WALES - Country Areas

Private Sector

Margaret Spencer of Tenterfield is in the process of completing a book entitled "Malaria - the Australian Experience, 1843-1991"

Campbell Brothers, Inverell

Carolyn Ditchfield has been dealing with an increasing number of enquiries from a growing number of small horticulturalists establishing themselves in the Inverell area.

The Lice Company, Tamworth

After the move from Young, NSW, the new ectoparasite facility is fully shaken down, allowing continuation of work on sheep and cattle ectoparasiticide. **Nicholas Sherwood** thus has a little more time to complete his topical work on *Bovicola ovis*.

Stahmann Farms Inc, Biniguy

Jamie Seymour has left CSIRO Long Pocket and is now employed by Stahmann Farms Inc as head of Research & Development at their Moree pecan orchard. Part of his brief in conjunction with **Michael Crouch** and **Glenn Bowman** is the maintenance of Biological Alternatives, the commercial insectary set up by Stahmann Farms Inc for the production of *Trichogramma* and lacewings.

Presently trials of *Trichogramma* against *Helicoverpa* are being run in organic cotton blocks. Good success has been achieved in control of

Helicoverpa in tomatoes at Bundaberg using *Trichogramma* released by John Hall of Crop Tech.

A workshop on *Trichogramma* in Australian agriculture is being organised to take place at the Centre for Tropical Pest Management on the 21st and 22nd of February. Dr **Sherif Hasan** from Germany will be coming out to address the group.

There has been a second commercial *Trichogramma* insectary set up in Moree. It is being run by **Ross Munroe** and associates and is presently supplying *Trichogramma* to growers of organic cotton.

Recently **Jamie Seymour** returned from a two week course in China on artificial diets in *Trichogramma* rearing. The course drew participants from all over the world and was very informative.

Mark Coombes from CSIRO Long Pocket is presently sampling *Nezara viridula* at Stahmann Farms. He is putting in place sampling methods to monitor *Nezara* numbers and mortality rates so that life tables can be established. In addition he brought plants infested with soft fluted scales to the farm to recover native parasitoids for **Veronica Brancitini** of CSIRO Long Pocket.

Dave Murray and **Brad Scholz** (QDPI Toowoomba) are also visiting Stahmann Farms to see the commercial insectary and help iron out a few of the bugs [so to speak. -Ed.]

NSW Agriculture

Regional Veterinary Laboratory, Armidale

Gus Campbell is currently assembling the results of two years' work on an RIRDC-funded project examining parasites of scarabs in the New England region. These results would appear to promise some very interesting conclusions.

NSW Agriculture

Australian Cotton Research Institute, Myall Vale

Summer has proven to be quite busy with field work and planning for the inaugural World Cotton Research Conference which is to be held in Brisbane in February. **Greg Constable** and **Neil Forrester** are co-conveners for this conference which has attracted well over 500 participants. A number of overseas entomologists will be attending and no doubt will visit research institutes, etc. while out here. There are a number of pest management sessions planned including IPM (two sessions), insecticides/toxicology, insecticide

resistance, ecology, pest modelling, host plant resistance, genetic engineering, pesticides in the environment and a specialist workshop on whitefly. The invited plenary talks of entomological interest are:- IPM: advances and prospects (**David Lyon**, U.K.), Resistance to insecticides in insect pests of cotton (**Bill Plapp**, USA), Ecological attributes of major cotton pests: implications for management (Vaissayre, France) and host plant resistance in cotton to insects (**Johnie Jenkins**, USA). Invited keynote concurrent session speakers of entomological interest include:- Xia (China), Ramalho (Brazil), Watkinson, Sterling, Deaton and Roush (USA) and **Fitt, Forrester and Gregg** (Australia). Vic Edge will give the summary review of entomological papers at the close of the conference.

Myint Swe from Myanmar recently spent three weeks on a FAO Fellowship at the Australian Cotton Research Institute at Narrabri studying practical aspects of the management of insect pests of cotton.

The International Organisation for Pest Resistance Management (IOPRM) mission into China last October went well. **Neil Forrester** led a team of international scientists which reviewed the extent of the insecticide resistance problem in cotton insects in northern and central China. A quite serious situation was encountered, with extremely heavy reliance on mixtures and a remarkable surge in the use of *Bt*. Limited trip reports are available (refer Neil or **Paul Ferrar**, ACIAR Canberra, who helped fund the trip).

Dave Altman (Professor, Department of Plant Breeding & Biometry, Cornell University) visited the Australian Cotton Research Institute at Narrabri in December in his role as the Executive Director of the International Service for the Acquisition of Agri-Biotech Applications (ISAAA). He discussed transgenic cotton issues with a number of scientists from CSIRO and NSW Agriculture.

NSW Agriculture

Agricultural Research & Veterinary Centre, Orange

Graham Thwaite visited Melbourne in August to take part in the Independent Horticultural Distributors Seminar on IPM in Temperate Fruit Crops. This very successful meeting attracted some 300 fruit growers, commercial people and government research and extension personnel and certainly advanced the cause of IPM. While in the south Graham met with **Dave Williams** at Burnley,

just back from the USA, and together they discussed pesticide resistance problems with AVCA representatives.

A seemingly endless stream of potential entomologists passed through the Orange laboratories of NSW Agriculture in mid August as part of the local primary schools' LINC program involving about 600 year 4 students. Groups of 15-20 children around 9 years old were shown some of the finer points of entomology.

Congratulations to **Adrian Nicholas** of Bathurst who achieved a distinction in his MSc Qualifying through the University of Western Sydney. He will now go on to complete his MSc by research.

In November **Adrian, Richard Vickers** (CSIRO Canberra) and **Graham Thwaite** staffed part of the CSIRO exhibit at the Australian National Field Days at Orange. They were on hand to promote their four state codling moth mating disruption project to the rural public.

Among the very welcome visitors to Orange was **David Pree**, Agriculture Canada and presently at CSIRO. David discussed apple pest matters with **Graham Thwaite**. **John Macdonald** escaped the heat of Wollongbar to visit Orange, and while there compared notes with Graham.

NSW Agriculture

Agricultural Research Centre, Tamworth

John Hosking and **Royce Holtkamp** attended the 10th Australian and 14th Asian Pacific Weeds Conference in Brisbane last September. Royce gave a paper about weed biocontrol on behalf of them both. **Peter Stahle** (Biological Control Coordinator, Rural Industries Research Corporations) visited John and Royce in December to discuss funding of weed biological control programs.

Nerida Coleman and **Royce Holtkamp** attended the ANIC Technical Training Course in Canberra in September. The course dealt with insect collecting and curatorial techniques. Both Nerida and Royce thought that the course was fantastic.

In September **Robin Gunning** and **Marje Balfe** attended Science 2000, the big scientific equipment exhibition in Sydney. They returned to Tamworth lusting after very expensive biochemical equipment - all dreams, they can't afford any of it.

The 1993/94 cotton season is well under way and **Robin Gunning, Marje Balfe** and **Nerida Coleman** are enjoying field trips to the Macquarie Valley cotton area. This is part of the resistance monitoring program that they are running for the

cotton industry there. On the *Helicoverpa armigera* insecticide resistance front, **Robin Gunning** is very excited about her biochemical kit which detects pyrethroid resistant *H. armigera* - instantly!

There will be an international cotton conference in Brisbane in February, so Australia will be crawling with cotton entomologists then - there will be lots of visitors to tell about then.

NSW Agriculture

Yanco Agricultural Institute, Yanco

In between attending conferences on snails (Camden), chironomids (Canberra) and temperate rice production (Yanco), **Mark Stevens** has spent much of the last month or so in front of his computer attempting to develop image analysis techniques for assessing resistance of rice varieties to chironomid attack. Some results are finally starting to appear, if only at a trickle. The rice field trials for the year are over, and vast numbers of samples are stacked in the laboratory freezers awaiting analysis over the next few months. Interesting results are being obtained in a study of factors influencing oviposition site selection in *Chironomus tepperi*, a highly damaging species that is often univoltine in establishing rice crops.

Richard FAULDER
Regional Councillor

NORTHERN TERRITORY

In spite of sharing a small isolated town, Darwin's entomologists keep fairly much to themselves. To help remedy this situation, a barbecue was held during November at the Department of Primary Industry and Fisheries Social Club. The Society's Darwin membership is about a dozen, so it was an wonderful surprise to see over fifty entomological enthusiasts attending and having a great time. Unfortunately, we didn't persuade any of the freeloaders to join up. If you attended and are now missing an oval brown plastic platter, see your Regional Councillor. The ransom is one Society membership.

At this time of year, most residents of the Top End have either migrated south or have thrown off all their clothes and gone running screaming into the bush. If the contributions from up here are a little lacking this issue, don't despair. By next issue most of us will have come to our senses and crept rather sheepishly back to our desks.

Northern Territory Museum of Arts and Sciences

The star and co-star of Spielberg's recent epic "Ambylypygid Park" have gone on to separate projects. **Graham Brown** scored a bit part in "Arachnophobia", before starring in "Around the Horn" in which a swashbuckling entomologist sails up the Finke River to Palm Valley and Kings Canyon in preparation for the centenary celebration of the Horn expedition to central Australia. Graham found so many things to stick pins into that he ran out of pins.

Jenny Webber, meanwhile, won the lead in "Critters". Her character transfers to the Education Unit where she runs holiday "Backyard Beasts" workshops for kids. Good boys and girls get to look down microscopes and watch Densey Clyne videos. Naughty ones get to play with redback spiders.

Office of the Supervising Scientist

Alligator Rivers Region Research Institute

Greg Rippon is developing a new interest in termite taxonomy having made collections at Tin Camp Creek and Nabarlek in Arnhem Land.

CSIRO Division of Entomology

Tropical Ecosystems Research Centre

John Carew from CSIRO Division of Entomology in Brisbane spent a week with us in November. John, who is one of **Wendy Forno's** ace insect rearers, finally got to see mimosa in the flesh, simultaneous with the arrival of the tropical "buildup".

Peter Jacklyn, former TERC PhD student and now part of ABC Radio National's Green and Practical team, was also in Darwin during November. Primarily here to cover the Darwin to Adelaide Solar Challenge, Peter managed to spend some time at TERC catching up with friends and discussing possible angles for future stories.

Professor **Harold Woolhouse** visited Darwin as part of the Division's Performance Evaluation. As well as the normal talk-feast associated with such events, time was also spent out in the field where Harold had a chance to sample the delights of the floodplains. Despite the lumpy milk provided for morning tea, the trip was enjoyed by our guest.

The last few weeks of November saw **Mark Lonsdale** spending much time on the road to Kakadu. He addressed a meeting at Ranger Uranium mine on the problems caused by weeds in mine site rehabilitation, and later saw the start

of an extended meeting of CSIRO's multi-divisional Mine Site Rehabilitation Research Program at Jabiru. Mark followed this with another talk on weeds of conservation in early December as part of a TERC inservice course for the ecotourism industry, again held at Jabiru.

To his great relief, **Grant Farrell** was able to bring the mimosa model project in on time. To the even greater surprise of Mark, the thing was apparently bug free and initial tests suggest the model is workable, robust and reliable.

Mark Lonsdale started 1994 in his usual high profile way with TV and radio appearances. Both the local and national ABC news services covered the release of *Eutinobothris* sp., the new biocontrol agent for sida. Dedicated followers of his career should note that the ubiquitous Akubra was nowhere to be seen. This was not due to the interviews being conducted indoors. This has not stopped him before. No, this was due to his swollen head no longer being able to fit into the hat.

Additional visitors included **Bill Winter**, Assistant Chief of the Division of Tropical Crops and Pastures, and Dr **David Kemp** MP, Shadow Minister for Science, Technology and Export Development. **Professor Ito** from the Japanese School of Arts and Sciences at Okinawa University spent a week in December chasing mud wasps around the outhouses at TERC, and the termite group from the Division of Entomology in Canberra had an extended stay in Darwin during November and December.

CSIRO Division of Entomology Salvinia Project

Michael Storrs has just completed trials using herbicides in an integrated approach with the weevil *Cyrtobagous salviniae*, to facilitate the control of salvinia in Kakadu National Park. **Mic Julien** visited the project in early December, just prior to the area receiving over 600 mm of rain.

CSIRO Division of Wildlife and Ecology Tropical Ecosystems Research Centre

Alan Andersen has played host to **Stewart Peck** from Carleton University in Canada, who was continuing his studies of Australian rainforest beetles. He collected plenty of beetles, but apparently not a single leiodid, his main interest. It didn't take him long to realise that all the insect diversity is in the savannas, not monsoon forests!

Alan has become Technical Editor of JAES, and his first New Year's resolution is to deal effectively with tardy referees. His highlight of the year so far has been a nice barra plucked from a culvert feeding into the South Alligator River, and his second New year's resolution is that there should be more of it.

Lyn Lowe has completed the fieldwork component of a detailed study of seasonality in savanna grasshoppers, and continues to monitor the effects of fire on grasshopper assemblages. She is now a master of field identification of grasshoppers. **Scott Morrison** continues to work on the joint CSIRO-OSS project on ants as bioindicators of minesite restoration. Some really marvellous results are coming in, as you might expect! **Hanna Reichel** (Würzburg University student) is halfway through her 1 year project on NT rainforest ants. She continues to come up with great finds, including species of *Turneria*, *Machomyrma* and *Prionopelta* (new genera for the NT), and two new species of *Aphaenogaster*.

DPI&F Weeds Branch

It's an odd feeling to be snowed under when it's 33°C and 95% humidity. When the monsoon descends the weeds start growing, the roads become impassable, the air conditioning fails, the leeches get hungry and everybody's cranky. With 3 new biological control agents due to arrive before the end of the "Wet", we've been teaching our current lot of insects to make their own way in the world. Out with the old and in with the new!

Grant Flanagan was seen on ABC TV with CSIRO's **Mark Lonsdale** making the first release of the new sida weevil *Eutinobothris* sp., while **Leslee Hills** appeared almost as large as life in the NT News.

At the recent CSIRO Division of Entomology Performance Evaluation, **Colin Wilson** was given the opportunity of applying a therapeutic steel cap into the squidgies. Fortunately for them his boots were at the panel beaters and he only had his Hush Puppies on.

Debbie van Rangelrooy was unleashed onto an unsuspecting CSIRO Division of Entomology in Brisbane during October, but they got their own back by sending us **John Carew**, and then **Wendy Fomo**.

DPI&F Entomology Branch

At the completion of the mango season, **John**

Duff, Stuart Smith, Deanna Chin and Shane Griffiths were heavily involved with an IPM workshop directed towards nurseries in the Top End, especially emphasising mite and mealy bug control. Two interstate speakers, **Philippa Mathias** (Nursery Industry Development Officer, Windsor, NSW) and **Keith Bodman** (QDPI Redland Bay) provided their expertise to about 35 participants.

With thrips on the move around Australia, the pressure on the NT has decreased but **Kaye Hergstrom** has continued work on *Thrips palmi* (melon thrips). There have been encouraging results from the use of insect growth regulators and biocontrol agents (predatory bugs and spiders).

Our collective hopes were dashed on one occasion when a large sample of good quality *Cannabis sativa*, which had been delivered by the Police Drug Squad, was again removed. The police wished to correlate insects in the sample with other material confiscated interstate.

Most staff took the opportunity of the slightly reduced workload over the Christmas break to escape the "buildup". **John Duff** and **Haidee Brown**, who coincidentally is up the duff (no relation), soldiered on during the onset of the monsoon, John continuing a nursery survey and Haidee struggling to keep thrips colonies happy.

NT Health, Medical Entomology Branch

Medical entomology has experienced a high public profile in the last few months by virtue of the biggest plagues of saltmarsh mosquitoes in many years. An indication of the extent of these plagues in the Top End is in the 9,500 mozzies recorded from 1 trap in 1 night at Jabiru in December. We have been conducting helicopter control operations in Leanyer Swamp near Darwin's northern suburbs, including the use of a new granular formulation of Bti.

Mosquito investigations in recent months included a visit to Alice Springs by **Peter Whelan** and **Brian Montgomery** in October, followed by an investigation in Nhulunbuy by Peter in November.

The Health Minister **Mike Reed** and his secretary paid the Branch a surprise visit in January.

A PhD scholarship was advertised in the Australian on December 20 for research into biting midges and is expected to be taken up within the next few months.

Colin WILSON
Regional Councillor

NORTH QUEENSLAND

QDPI - Mareeba and Innisfail

Dick Drew, Annice Lloyd and Allan Allwood (FAO Fruit Fly TCP, Fiji) passed through Mareeba in early November at the end of two weeks of QFVG initiated workshops on fruit flies involving growers along the Queensland coast. The workshops concentrated on protein bait spray efficacy and were evidently so well received that more are planned.

The Centre for Tropical Pest Management (Brisbane) recently released a report on the Fruitspotting Bug Workshop held in Mareeba in July. The report focuses on the limitations of existing control measures, knowledge gaps (and there are many) and priority research areas. Anyone seeking a copy should contact **Geoff Waite** (DPI Nambour) or **Harry Fay** (DPI Mareeba).

Nerissa Cini, a student at James Cook University, is one of the recipients of the Centre for Tropical Pest Management's Vacation Scholarships and will spend several weeks in January surveying banana growers in the Tully-Innisfail area for their awareness/ enthusiasm/ adoption of the IPM methodology espoused in the project recently completed by **Bruno Pinese** and **Richard Piper**. Bruno has spent a nightmarish few months working his way through the proofs of the Banana Pest Management Manual which evolved from the IPM project and which will be distributed to all banana growers.

Ian Cunningham took on a new role as Costume Maker for the Mango Mardi Gras held at Mutchilba (west of Mareeba) in late January. Six outsize masks in the form of insect heads (including those of the mango seed weevil, mango tip borer and mango flatid) adorned fleet-footed DPI bodies charging amongst the crowd brandishing water pistols - surely not to play on the spray gun mentality of some growers - (but) to drench onlookers with progressive pest management concepts (see photos next page).

Visitors to the Far North

Max Moulds (Australian Museum) teamed up with locals **Jack Hasenpusch** and **Graham Wood** to indulge in some early wet season collecting in the McIlwraith Range on Cape York. Evidently, they couldn't make it past the Archer River.

Geoff Monteith (Queensland Museum) passed through in December to undertake further

PHOTOS OF THE MANGO MARDI GRAS
held at Mutchilba (west of Mareeba) in January
(see story on previous page)



mountain-top sampling and risk the perils of rock climbing with his sons on Mt. Pieter Botte near Cape Tribulation. He was reported to have survived.

Penny Greenslade (ANIC) will enter a house-swapping arrangement when she arrives in Mareeba shortly to further her studies of Wet Tropics collembola. **John Neldner**, a Department of Environment and Heritage botanist in Mareeba, has also willed Penny the use of his car in the deal. But then Subarus are durable!

Oonoonba Veterinary Laboratory - Townsville

Veterinary entomology at Oonoonba is rapidly shrinking. In the last 6 months, staff numbers have fallen from 3 to 1, with **Bill Doherty** the survivor. The funding for **Dean Gibson** (who had been seconded from CSIRO Division of Tropical Animal Production) ran out and CSIRO transferred him into non-entomological work in Rockhampton. **Glenn Bellis** has taken up a position as quarantine entomologist for NTDPF in Darwin. Hopefully, he will be replaced, but this is by no means certain.

Research at Oonoonba is currently concentrating on *Culicoides* spp. (vectors of arboviruses including blue-tongue and akabane) and buffalo fly. *Culicoides* work includes some surveillance of Cape York Peninsula for species immigrating from PNG (no definite immigrants found yet) and a cooperative project with CSIRO DTAP at Long Pocket to test *Culicoides* spp. (particularly *C. victoriana*) from southern Australia for their ability to act as vectors of blue-tongue viruses. CSIRO collects the insects in SA in spring and Victoria in summer/autumn and airfreights them live to Oonoonba where they are fed on viraemic sheep in an isolation unit. They are then tested for infection with blue-tongue virus. Buffalo fly studies include some development work on a new chemical and a small cooperative project with **Rudi Urech** and **Peter Green** at DPI Animal Research Institute to look at chemical attractants. Oonoonba supplies the latter with flies from its laboratory colony for this work.

Tropical Weeds Research Centre Charters Towers

Bill Palmer visited TWRC in January whilst in transit from the Department's North American Field Station in Texas to the Alan Fletcher Research Station in Brisbane. Bill has been based in North America for 12 years and this was the first

opportunity to see TWRC and Charters Towers district.

James Cook University - Zoology Department

A quiet period (finally) for the tropical entomologists at JCU. Most did the obvious over the festive season, escaping south to friends and families in places where Christmas chocolates don't melt below room temperature. But on a brighter note, you should see the butterflies now!

Apart from tidying up last year's loose ends, the major item on the agenda is to gear up for the handful of new entomology postgraduates who have already begun to trickle in. **David Slaney** has arrived from Adelaide (via the UK and Africa) to start a PhD on cave entomology with **Phil Weinstein**. The other new faces are all Honours students: **Suzanne Pearson** is studying the respiratory physiology of troglodytes; **Deon Podger** insect herbivory in mistletoes; **Bruce Russell** the biological control of *Aedes aegypti*, and **Sarah Russell** the disease vector potential of tropical tabanids. All these newbies are wished well!

Harry FAY

Regional Councillor

S.E. QUEENSLAND

CRC for Tropical Pest Management

The centre held an open day in November demonstrating its work through interactive displays and presentations. The demonstrations included biological control of weeds and insects, integrated pest management in crops such as citrus/ cotton/ strawberries, computer models for predicting insect populations, 3-D "virtual" plants which predict yield loss after insect damage, and pest management education for the future.

The Centre Director, **Geoff Norton**, paid a quick visit to China and the Philippines in October. Geoff visited **K. Heong** at IRRRI to discuss prospects for further collaboration with CTPM and then on to Zhejiang Agricultural University, Hangzhou, China to look at an ACIAR project on IPM in brassicas.

University of Queensland, St Lucia Campus

Joan Bryan and **Des Foley** have been busy with the Australian Tropical Health and Nutrition Conference held at the Gateway Hotel, Brisbane between 21-23 October. Joan and Des contributed heavily to a workshop on "Identification techniques for members of the *Anopheles punctulatus*

complex"

Eric Reye went to River Heads, Hervey Bay, to identify the breeding sites of *Culicoides ornatus*. Eric has located the general area for midge breeding but it will require further investigation to determine its limits.

Eric wishes to announce that the Biting Midge Section at the Department of Entomology, University of Queensland, is about to close and expects to vacate its room within six months. The fate of its large collection of biting midges (mostly from the east coast of Australia), their catalogue, notes on species, field notes and files on work done for local authorities and others, its file index of literature and reprint collection will have to be decided fairly rapidly. These items can be disposed of in whole or in part to any organization or person interested in acquiring them on the following conditions: 1) They will be used for scientific purposes and will not be sold; 2) They will be housed and cared for adequately in the long term; and 3) They will be made available freely to *bona fide* students or workers involved with this group of insects. Expressions of interest are invited and should be lodged with Eric Reye as soon as possible. Should you know of any persons or organization who may be interested, it would be appreciated if you could inform them of this notice.

Mick Day, previously of the Natural History Museum in London, visited the Museum for several days early this month. Mick is constructing a generic key to the pompilids (spider wasps) funded by an ABRS grant. A highlight of his stay was a field collection at Leyburn with **Greg Daniels** where he saw his subject in the flesh for the first time.

Greg Daniels is spending all of January on a collecting trip / holiday on Cape York peninsula, with McIlwraith Range being the main target area.

Margaret Schneider spent a week in Canberra in mid January attending the DELTA workshop organised by the Plant Science Centre of the Research School of Biological Sciences, ANU. She also visited the ANIC to study the collection of conopid flies.

Recent honours graduate, **Jenny Beard**, has been engaged on a short term basis as illustrator for **David Walter** and the CTPM and has taken up residence in the Museum. Jenny will be undertaking a pictorial key and pamphlet of insect and mite pests as well as illustrations for the computer assisted learning program.

Ian Titmarsh from QDPI Biloela Research

Station has been awarded his PhD from 11 Nov 1993. His project was "Mortality of immature Lepidoptera, a case study with *Heliothis* species (Lepidoptera: Noctuidae) in agricultural crops on the Darling Downs".

Ex-department electronics and computer wiz, **Phil Webb**, has retired to Esk where he is selling radio receivers that pick up weather satellite pictures. Phil is available for small electronic contracting. His phone number is 074 241 761.

University of Queensland, Gatton Campus

Neil Heather from the QDPI and **B. Mungen** from USDA, Weslaco, Texas, USA, visited **Errol Hassan** to discuss fruit fly problems in the Lockyer Valley and project prospects.

Isiheli Oho, course coordinator for the agricultural training program, Tonga, visited the campus to discuss course curricula with various staff members. He was particularly interested in discussing courses in plant protection, apiculture and economic insect collections.

A three year project on pest management in *Duboisia*, funded by Boehringer Ingelheim is underway at the college. A PhD student, **Qazi Razzaque**, and his supervisor, **Errol Hassan**, held discussions with **Wulf Ohlendorff** (Boehringer Ingelheim) and **Kevin Templeton** (Australian Operation's manager of Duboisia Plantations). The project took them all to Kingaroy where they collected flea beetles from *Duboisia*.

Several projects on neem are also underway. **Wolfgang Iwanzik**, head of research and development at Ciba Plant Protection in Indonesia, visited Errol to discuss neem research on cabbage moth and other cabbage pests. Wolfgang is interested in neem work and its applicability to Indonesia. **Andrew McHugh**, project manager in agriculture in Allied Colloids (Australia) Pty Ltd, also visited Errol to discuss the neem work at the college. Allied Colloids are developing polymers for slow release insecticide formulations.

QDPI Plant Protection, Indooroopilly

Dick Drew and **Annice Lloyd** have been on the road for two weeks addressing a series of grower meetings on pre-harvest fruit fly control. The DPI team was joined by **Allan Allwood**, Chief Technical Adviser for the FAO Regional Fruit Fly Project in the South Pacific, who has collaborated with Dick in a number of ACIAR fruit fly projects. Meetings were held in twelve major fruit and vegetable

growing centres from Nambour to Mareeba. The itinerary for the trip was organized by **Rod Glass**, research co-ordinator for Queensland Fruit & Vegetable Growers. Funding was provided by ACIAR which currently funds most of the DPI fruit fly research program. Growers responded enthusiastically to the seminars which stressed the importance of protein bait sprays for pre-harvest fruit fly control in IPM programs. Several grower groups from areas not included in the original tour have already requested the DPI team to address future meetings.

Merv Bengston and **Greg Daglish** returned recently from China, Malaysia, the Philippines and Thailand where they had been monitoring progress in several ACIAR projects on management of stored insects. They teamed up with **Barry Longstaff** (CSIRO, Canberra) and **Bruce Champ** (ACIAR Postharvest Program Coordinator) for part of the trip. A topic of concern was the development of resistance to the fumigant phosphine in the region and its implications for pest management practices.

Bryan Cantrell, **Ross Wylie** and **Ian Muirhead** attended a meeting of the Plant Health Committee in Darwin on 26-28 October. One of the issues discussed was whether contingency plans should be developed for incursions of exotic pests and diseases as exist for diseases of animals.

The last few weeks saw **John Donaldson** and **Marlene Elson-Harris** looking for Western flower thrips in flowers sent from Redlands, Rochedale, Eight Mile Plains, Mt Tamborine and Canungra. Fortunately the survey, which followed a positive sample, failed to yield any of these thrips.

Russell Parker and **John Hargreaves** have presented workshops in Brisbane in conjunction with the Queensland Nursery Industry Association promoting the new "Pest Control in Ornamental Crops" manual. Workshops are planned for Cairns and possibly Townsville and Darwin.

QDPI, Queensland Forest Service

Ross Wylie, **Judy King** and **Murdoch De Baar** spent a couple of days examining spotted gum, *Eucalyptus maculata*, attacked by a *Tryphocaria* (Cerambycidae) at Barakula State Forest, near Chinchilla, during August 1993. Severe damage had been done to standing trees. It was interesting to note that a nearby state forest in the Dalby area in 1990 also had severe damage to the spotted gums but this was caused by a different species of

Tryphocaria.

Kevin White, a forestry consultant from Pattaya in Thailand, formerly of PNG, briefly visited Indooroopilly to renew acquaintances with **Ross Wylie** and **Dorothy Shaw**.

CSIRO Long Pocket

Long Pocket has new phone numbers. The new stem is 2142 followed by the present 3 digit extension. The new fax number is 214 2885.

David Raubenheimer and **Lindsay Barton Brown** are hoping to appear in the Guinness Book of Records for the longest observations yet of the fine structure of feeding of a larval insect. They are using heliothis on diet as a model for their study on the effect of larval instar on feeding behaviour.

Peter Room attended the CSIRO workshop on new initiatives in software engineering in Sydney in connection with his virtual plant software work. Peter has two new PhD scholars. **Peter Wilson** will work on stylo response to damage by heliothis and anthracnose with an RIRDC funded scholarship. **Jason Cook** has a CRC funded scholarship and will be working in the area of modelling of plant growth and insect damage. **Miriam Raymond**, a new CTPM research assistant, will work with Peter and **Victor Sadras** on cotton responses to pest damage.

Three CTPM funded 12 week vacation scholars are working at Long Pocket. **Kendal Gerlach** will work with **Peter Room** trying to discover what controls crowding of folded leaves in salvinia. **Thierry Giblot-Ducray** will help **Jim Hanan** with programming the data acquisition system for modelling plant structures. **Katherine Kettle** will work with **Tim Heard** on the effect of mimosa flower gender on herbivory by a flower feeding weevil.

The fungus *Phloeospora mimosaeipigrae* has been approved for release against *Mimosa pigra*. It will be mass-reared in Brisbane and Darwin and released this coming wet season. **Alan Tomley** of Alan Fletcher Research Station is providing local expertise as the host-testing was carried out in the U.K. **Wendy Forno** believes it is the first non-rust fungus to be used for biological control of a weed in Australia. Host testing of another fungus species which, unlike this one, appears to favour dry-season conditions is underway.

Both **John Carew** and **Veronica Brancatini** are visiting Darwin. John is transporting and releasing mimosa biological control agents for studies on the

effect of these agents on plant fitness. Veronica is collected mealybugs for breeding of parasites.

Mic Julien is off to PNG again on water hyacinth activities. **Michael Storrs** has begun trials looking at the combination of biological and chemical control of salvinia in Kakadu National Park. Also on the subject of aquatic weed management, **Tony Wright** is making his preliminary visits to Vietnam and Indonesia to discuss biological of water hyacinth.

Arel Mira, former entomologist in El Salvador, is working part-time with the weeds group. She is assisting with the project on the effect of eutrophication of biological control of water hyacinth and with the breeding of biological control agents.

Ken Harley has been invited to participate in the formulation of a UNDP / GEF project document for control of aquatic weeds to enhance restoration of biodiversity for the Ivory Coast Region.

Yamane Soichi from Ibaraki University visited the site to study the structure of paper wasp societies. He will also visit Darwin and Townsville before returning to Brisbane to observe oviposition behaviour of trigona bees.

Gus Macqueen left CSIRO in December after 20 years of service. We will include a segment on Gus' life and works in the next issue.

Jamie Seymour left CSIRO to join Stahmann Farms at Moree NSW. We wish him well in his new venture in commercialising biological control. We welcome **Marc Coombs** who recently joined Don Sands' group. Marc will complete the studies initiated by **Jamie Seymour** on management and natural enemies of green vegetable bug in pecan orchards. He will later be involved in a new three year project funded by Stahmann Farms and HRDC to study improved biological control of GVB in Australia.

As part of an ACIAR supported project, **Don Sands** and **Veronica Brancatini** travelled to Pohnpei and Mokil, Micronesia, carrying a culture of *Rodolia limbata*. This beetle will be cultured in sub-quarantine for release as a biological control agent against the fluted scale *Icerya aegyptiaca* (also known as the breadfruit mealybug). This scale has been a very serious pest of breadfruit, a staple food. There have been several previous attempts at biological control using other species of *Rodolia*. Don hopes the tropically adapted *R. limbata* will succeed where the others have only been partially successful.

Ced Gillott, Dept of Biology, Uni of

Saskatchewan, who has been spending his sabbatical with the Division in Canberra, will be visiting **Lindsay Barton Browne** in late March. **Lynn Riddiford** and **James Truman**, University of Washington, will be hosted by **David Kemp** and **Gene Wijffels**.

Queensland Institute of Medical Research, Mosquito Control Lab

Brian Kay and **Lynda Muir** attended a dengue fever management workshop in Townsville. The workshop brought together representatives from local and state governments, universities, medicine, industry, and community organisations to develop a management plan for dengue fever in North Queensland based on the community participation "bottom up" approach. Entomological surveillance and control formed a large part of the management plan. Local authorities and Queensland Health are keen to implement our new surveillance lure for the vector of dengue, *Aedes aegypti*.

We continue to receive updates on **Ian Fanning's** travels. Ian completed his TESOL course in Egypt in time to arrive in Moscow for the uprisings. Undaunted, he continued to Pakistan for rest, recreation and a WHO consultancy, only to be faced with an earthquake and insurgents. He should now be in Burma visiting ex-MCL member, **Willoughby Tun-Lin**.

Old Dept of Lands

Alan Fletcher Research Station

All telephone numbers have changed at the Alan Fletcher Research Station. The new switch number is 375 0700. The fax number, 379 6815, remains unchanged.

Requests to **Santa** were for widespread rain to make the weeds grow so our biocontrol agents have something to survive on in the field. **Graham Donnelly** made an almost believable Santa at the staff Christmas BBQ, but he still hasn't delivered the rain. Graham has been travelling in central and western Queensland to collect pods from mesquite and *Parkinsonia* to rear bruchid seed beetles. The mesquite work is a new joint Queensland/ Western Australia project funded by Meat Research Corporation.

Rachel McFadyen is off to central Queensland in January to evaluate the effects of agents on *Parthenium*. As well as inspecting progress of current releases of the Argentine stem-boring moth

Platphalonidia mystica and the stem-galling weevil *Conotrachelus* sp., Rachel will be looking for the Mexican leaf-feeding beetle *Zygogramma bicolorata* which completely defoliated patches of *Parthenium* in central Queensland last summer.

Brian Willson is suffering a resurgence in requests for lantana insects following a repeat screening of a segment on lantana on "Totally Wild".

David Sparkes leaves AFRS in January after three years on the Fireweed biocontrol project. David will be employed on a Landcare funded project at the back-of-Bourke, in western New South Wales. He will be investigating the role of native insects in controlling native woody weeds. We wish him well in his new job.

Tim HEARD
Regional Councillor

Department of Primary Industries, Toowoomba

Bill Steiner, Research Geneticist, USDA-ARS Biological Control of Insects Research Laboratory, Colombia, Missouri, is visiting QDPI Toowoomba for 12 weeks ending mid-February. While in Toowoomba, Bill is working with **David Murray** and **Peter Gregg** (UNE, Armidale) investigating behavioural and genetic aspects of larval parasitoids of *Heliothis/Helicoverpa* spp. **Dan Cornally** (UNE Student) has a CTPM Vacation Scholarship to carry out a project in cooperation with Bill.

Discovery of the introduced melon thrips, *Thrips palmi*, around Brisbane has imposed quarantine measures on the export of certain produce from the Darling Downs (and other areas in Queensland) to WA, SA and Tasmania. **Gordon Simpson** and **Richard Lloyd** were designated local coordinators to ensure smooth running of the quarantine program implemented since discovery of this thrips. **John Donaldson** (QDPI, Indooroopilly) identifies any suspect specimens from trapping.

Gordon Simpson and **Brad Scholz** received a number of spiders for identification in early January. This followed a report in the Toowoomba newspaper about funnel-web spiders. Wolf-spider densities are somewhat less as a result.

A *Pteromalus* sp. (Pteromalidae) has played havoc with **Brad Scholz's** *Sitotroga* colonies used for rearing egg parasitoids of *Helicoverpa* spp. Infestation was so great that the colonies have had to be rebuilt. Unfortunately, there seems little

chance of using the new species as *Sitotroga* is not a major pest.

The drought that is widespread over Queensland has upset **Richard Lloyd's** sampling for the area-wide *Helicoverpa* monitoring program, HEAPS. Sampling for eggs and larvae has not been productive. Rain received in late December led to an increased planting of summer crops; lack of follow-up rain means that many of those crops are struggling.

Department of Primary Industries

Granite Belt Horticultural Research Station

Frank Page has been involved with field studies to investigate the damage potential of the fruit sucking mirid bugs *Campylomma liebknechti* and *Creontiades dilutus* in peaches and nectarines. Frank reports an early appearance of Queensland fruit flies in local stonefruit orchards. A mild winter and showery spring contributed to the early activity. Also more active than usual has been *Helicoverpa punctigera*.

BSES, Bundaberg

Ron Cherry, canegrub entomologist with the University of Florida, Belle Glade, visited **Peter Allsopp**, **Peter Samson** and **David Logan**. He discussed canegrub research in Florida where flooding is one of the principal techniques used to reduce numbers. He also gave a seminar on the use of insects in ancient cultures.

Gordon SIMPSON
Regional Councillor

SOUTH AUSTRALIA

Department of Crop Protection

University of Adelaide

After a distinguished career spanning almost 40 years within the Department, **Peter Miles** has retired from the University of Adelaide. Peter joined the University in 1954 upon completion of a Ph.D. in insect physiology under V.B. Wigglesworth at Cambridge University. Peter's research and administrative achievements are many and varied. As Chairman of Entomology, Peter was largely responsible for establishing the Waite Institute's reputation as a centre for postgraduate IPM training. He became Dean of Agricultural Science in 1980, and set about reforming the curriculum and introducing a four year Honours in place of the old five. The main emphasis of Peter's early

research at the Waite Institute was on the salivary physiology of Homoptera and phytophagous Heteroptera. However, his research direction from the mid-1970's onwards became orientated toward plant physiology - specifically the biochemical interactions by which sucking insects cause and/or suppress toxic reactions in their food plants. The final and on-going stage of Peter's research career has centred on the transformation of aphid-susceptible cultivars of potato and lucerne with a gene which should increase the content of tissue glutathione reductase. It is hoped that the transformed plants will show an accelerated recycling - and hence an effective increased concentration - of both glutathione and ascorbic acid, thereby increasing their ability to resist or tolerate aphids and other sucking insects. On Peter's major contributions to scientific literature over the past 4 decades it would be superfluous to comment. His intellectual input will be sorely missed in the Department.

With postgraduate activity gearing-down in the Miles' lab, **V.V. Madhusudhan** (Madhu) has submitted his Ph.D. thesis, titled "Interaction of the spotted Alfalfa aphid and its food plant" and will return to India in February. **Debbie Lorraine** is also nearing the completion of her research, and expects to submit early this year. Debbie attended the N.Z. Institute of Chemical Ecology Conference at the University of Auckland in December, where she presented a poster on the detoxification of plant allelochemicals by aphids.

In his retirement, **Derek Maelzer** has branched into medical entomology, helping analyse data for **Euon Tovey** of the University of Sydney's Department of Medicine. Derek presented an invited paper on the subject of water balance in house dust mites at the Mites, Asthma and Domestic Design Conference held in Sydney in March last year.

John Jennings recently spent 10 weeks in Europe on long service leave where he visited collections and entomologists at the Natural History Museum, Oxford, Edinburgh, Humboldt University, Genova, Firenze, Milano and Perugia. Lowlight of the trip was having all of his possessions stolen from the boot of his car in London. Amongst these were his Masters note books! John noted that, as in Australia, lack of funds was a common-place problem at all of the institutions visited.

Dudley Pinnock attended the International

Meeting on *Bacillus*, held at the Pasteur Institute, Paris, in July, then teamed up with **David Cooper** at Asheville, North Carolina, where they attended the Annual Conference of the Society for Invertebrate Pathology. David took the opportunity while in the U.S. to visit Prof. **Lou Falcon** at Berkeley, and Dr **Joe Maddox** at the State Natural History Survey in Urbana, Illinois.

Scott Field and **Sassan Asgari** have recently converted from Masters to Ph.D.'s. Scott is investigating patch defence behaviour in the parasitoid *Trissolcus basalis*, while Sassan is characterising host-like proteins involved in the passive protection of the eggs of the parasitoid *Cotesia rubecula* in its host, *Pieris rapae*.

Hello sailor - **Jane Drummond** has gone nautical! She will sail in April aboard the *Soren Larsen*, a 30 metre tall-ship, on a six month collecting expedition. The voyage will take her from Panama to New Zealand via the central South Pacific, during which she will collect entomopathogenic fungi and seaweed specimens.

Has someone slipped something into the insectary's water supply? Both **Bill Frost** and **Lynne Johnson** have recently announced their respective engagements!

Flinders University

Mike Schwarz has settled in at Flinders University and has begun work on some South Australian bees from mallee regions west of Port Augusta. The diversity and abundance of bees from these mallee regions is strikingly richer than from temperate forests in Victoria and should provide lots of material for ecological and behavioural projects over the next few years. **Pam Hurst** will start a Ph.D. in March 1994 looking at social behaviour in *Exoneura tridentata* - a social allopapine with allometrically distinct and largely flightless 'queens'. **Marianne St.Clair** has been carrying out experiments on kin recognition in *Exoneura bicolor*, and **Nicholas Bull** and **Simon Tierney** are beginning Honours projects on eusocial organisation in two allopapine species from Portland, Victoria.

Primary Industries

The non-occurrence of Western flower thrips in South Australia has been occupying the time of **Greg Baker** and **Gabriella Caon**, who have been scouring Adelaide cemeteries in search of the insects - so far with no 'success'. Greg previously

spent a week in Perth during spring, to see first hand the symptoms of damage and catch up with field identification. Greg also spent some time in Melbourne working with the grain legumes expert systems project.

Peter Allen has turned his attention to dog handling... - he is trying to train his beagles to sniff out insects at Adelaide airport, but has found they prefer salami. **Dennis Hopkins** has been putting finishing touches to plans for Primary Industries entomology laboratories at the Waite Campus. Early indications are that these will be ready to move into by June this year. **Geoff Furness**, thanks to the largesse of some big oil companies, is continuing his work on expanding the uses of spraying oils in horticultural crops. These oils need to be properly applied, so Geoff has been working with **Alan Fein** of Sydney University's School of Aeronautical Engineering to develop the 'FAZZLE', heralding the era of nozzle-less spraying.

Peter Bailey has recently attended a meeting of South Australian citrus growers, worried about insects in export citrus. Another participant was **Andrew Green** of the South Australian Citrus Board, who is also anxious that we export only clean fruit.

Private Entomology Sector

At present **James De Barro** and Crop Monitoring Services are in the midst of the lucerne field crop season. *Helicoverpa* and mirids are at low levels with no other major pest problems. The incidence of wasp parasitism appears quite high in view of the lower levels of hosts around. CMS and the DPI will launch the 'Success With Dryland Lucerne' manual in May of this year. The manual is designed to provide an in-depth practical manual for production and management of dryland lucerne pastures. James reports that ladybeetles were recorded at very high levels in late spring and early summer, possibly due to the high incidence of aphids in winter-spring. It was not uncommon to find masses of ladybirds wandering across the ground.

CSIRO Entomology and Soils

Earthworms preoccupy the zoologists at CSIRO in Adelaide with field and laboratory experiments ranging over a variety of topics such as the influence of earthworms on the burial of lime to offset soil acidity, their influence on pasture and grain production (quantity and quality), influence on

root diseases and the spread of microbial biocontrol agents to counter these, the effects on farm management practices on earthworm numbers and biomass, competitive interaction within and between various species, factors influencing the establishment of introduced species, development of a key to the common species and identification of different strains within species using molecular biological techniques (PCR-based). Prominent amongst this work is the introduction of the deep-burrowing *Aporrectodea longa* from Tasmania to mainland Australia. Deep-burrowing earthworms are rare amongst the fauna of agricultural soils in southern Australia. *A. longa* has been collected for this work from Cape Grim on the north-west tip of Tasmania in mid-winter. The site fully lives up to its name!

Geoff Baker recently gave a talk at the International Symposium on Plant-Soil Interactions at Low pH at Coolool, QLD (the golf course there is quite a distraction) and another talk at the Australian Agronomy Conference - both on earthworms. Geoff also attended the International Congress on Medical and Applied Malacology in Sydney to give talks on the ecology and biological control of introduced white and conical snails. On the topic of snails, Geoff addressed a meeting of the Sunraysia District Council of the Australian Dried Fruits Association in Mildura concerning snail management. Snails have emerged as a major problem in vineyards in this area, in particular contaminating dried fruit (e.g. dockage'sueensland of up to \$200/tonne). After the talk, Geoff viewed the problem with **Graeme Sanderson** (NSW Agriculture) who arranged the trip. In the meantime, **James Coupland** (CSIRO Entomology) is continuing his surveys and evaluation of biological control agents in the western Mediterranean. His searches have taken him recently as far as Morocco, and most interest is currently focussed on Sarcophagidae.

Paul Dalby (CRC for Soil & Land Management) gave a talk on his work on competition between earthworm species at the last Australian Ecological Society Conference in Canberra and received a high commendation for it within the student category. Well done Paul!

The soil zoology ranks have been extended in Adelaide by the addition of **Gupta Vadakattu** from Canberra, who has joined the CRC for Soil & Land Management. Gupta's team is initially concentrating its efforts on the population

dynamics of the protozoa and free-living nematodes in agricultural soils. It's marvellous to have more people - pity about the space to house them.

John Buckerfield has been kept very busy with field work, in particular interacting with various community groups who have been earthworm sampling. This has included TAFE students from Clare to Coonawarra who have surveyed in vineyards, and 'Kids for Landcare' who have monitored the recovery of earthworm populations after potato cropping. John, along with Gupta and **Bernard Doube**, also attended a Symposium on the Management of Soil Biota in Ballarat.

A side-line interest in Adelaide has been some further work on the Portuguese millipede *Ommatoiulus moreletii*, which is a nuisance pest when it invades houses in large numbers in winter and spring. Hitherto, no effective predators of *O. moreletii* were known in Australia, but **Teri Terrace** (a technician in CSIRO Soils) has now discovered that the native flatworm *Caenoplana coerulea* can be a voracious predator of this millipede.

BILL FROST
Regional Councillor

TASMANIA

Dept of Primary Industries and Fisheries

John Ireson has had considerable success in rearing larvae of the cinnabar moth *Tyria jacobaeae* for the control of ragwort. Releases have been made at several sites in Tasmania.

Forestry Commission

Paropsine leaf beetles continue to be the main research activity resulting in **Humphrey Elliott** getting out in the field and up ladders to check the trials.

Dick Bashford has been field monitoring chrysomelid populations throughout the State.

Steve Candy (biometrician) is alarmed at the indifference of field workers to his statistical plot layouts (i.e. all his office-generated plots are reduced by two thirds in the field!).

Tasmanian Curators Group

The January meeting was held at Queen Victoria Museum under the chairmanship of **Tim Kingston**. Attendees included **Lionel Hill**, **Dick Backford**, **Bob Mesibov**, **Trevor Semmens** and **Roger Buttemore**. **Peter McQuillan** was absent with a bad bout of the flu. The group has been expanded to include fauna

collections, with **Steve Smith** as the Parks representative.

Dick BASHFORD
Regional Councillor

VICTORIA

University of Melbourne Department of Genetics

At the end of September, **Jon Martin** made a two-week visit to the USA. During the first week, he worked with Prof. **Jim Sublette** at the University of Southern Colorado, Pueblo, using Jim's expertise to examine gynandromorphic midges under the scanning electron microscope. This provided some interesting insights into the development of sexually dimorphic tissues. Jon then travelled to Jackson, Mississippi, to attend the 6th Balbiani Ring Workshop, a biennial meeting of those working on the molecular biology of chironomids and other insects. This year, the workshop included papers on mayflies, sciarids and black flies, in addition to the midges. While many papers concentrated on the silk and the genes in the BRs which produce it, other topics covered the multiple haemoglobins, sex determination, histone genes and molecular techniques for recognizing disease-transmitting species of black fly.

In mid-January, **Mac Butler**, an aquatic entomologist from North Dakota State University, Fargo, arrived to spend a week with Jon, looking at cytological identification of North American midges, before they both travelled to Canberra for the Chironomid Conference.

Department of Agriculture Institute for Horticultural Development, Knoxfield

The Victorian Agricultural Insect Collection has been moved safely from Burnley to Knoxfield, where **Mali Malipatil** and **Ian Faithfull** have been re-installing it in a special facility room. This room also houses the Department's mycology specimen herbarium.

Paul Home is co-ordinating a national programme on the integrated pest management of foliar pests of potatoes. The programme includes several projects, covering both research and implementation of IPM strategies appropriate to the different potato-growing regions around the country.

Congratulations are due to two post-graduate

students co-supervised by Paul, who have both completed entomology projects with First Class Honours at La Trobe University. **Cait Symington's** project concerned the relative toxicities of insecticides and fungicides to both pest and beneficial insects of potato crops; **John Curtis** studied the augmentation of natural enemies of the potato moth. John has joined the staff at IHD and is currently working on controlled release insecticides. Another post-graduate student, **Cathy Mansfield**, is starting a project, co-supervised by Paul, on host plant location by the potato moth.

In November, **Peter Ridland** and **Jamie Seymour** (Biological Alternatives, Moree) attended the International Training Course on *in vitro* Rearing of Egg Parasitoids, held at the Guangdong Entomological Institute, Guangzhou, China. The fifteen participants were successfully initiated into the mysteries of rearing *Trichogramma* and *Anastatus* sp. (an egg parasitoid of the lychee stink bug, *Tessaratoma papillosa*) in "artificial" eggs filled with a mixture of pupal haemolymph of oak silkworm, egg yolk, malted milk powder, Neisenheimer's salt solution and antibiotics. In addition, a great deal of information on current *Trichogramma* research and field use was exchanged between delegates.

Department of Agriculture Plant Sciences & Biotechnology La Trobe University

A twist in the tail of the Burnley saga has seen La Trobe Uni get up and defeat the more highly fancied University of Melbourne in the race for the services of the Burnley Biotechnology Section. Included in this group are entomologists **Gordon Berg**, **Garry McDonald**, **Jim Woodward**, **Dave Bryant**, **Kylie Moritz** and **Tim Brown**, who are now based in the Agriculture building, adjacent to their colleagues in Zoology and Genetics. Their new address is:

Plant Sciences & Biotechnology
Department of Agriculture, Victoria
La Trobe University
Bundoora Vic. 3083
Phone (03) 479 2995
Fax (03) 471 0224.

The group is still rather unsettled with respect to accommodation, so there may be a new set of numbers in the next *Myrmecia*. However, things are improving, as an old biochemistry laboratory is gradually being transformed into a new entomology

lab. and CT rooms.

Jim "The Phantom" Woodward will be especially difficult to contact for the time being; he's off on yet another alleged cockroach-collecting safari, leaving typically vague indications of exactly where he's going. Any sightings of Jim should be reported (but not cherished).

Andrew HENDERSON
Regional Councillor

WESTERN AUSTRALIA

Department of Agriculture

Alan Devonshire from the Insecticide Resistance Group at Rothamsted UK recently visited the department and gave an excellent seminar on insecticide resistance in green peach aphid *Myzus persicae*. Alan eloquently applied the findings of complex molecular research to insect pest management. The current situation with Western Flower Thrips is that there are now 26 known infested properties of which 19 are commercial flower growers. **Nic Monzu** has been made coordinator of a national research program (3 years) on WFT and tomato spotted wilt virus.

Stewart Learmonth (DAWA, Manjimup) recently spent 2 weeks in the Republic of South Africa visiting the origin of 2 introduced pests in WA, namely the African black beetle and the garden weevil (or to locals, the black maize beetle and the banded fruit weevil). Stewart made some interesting entomological and political discoveries, as well as establishing good contacts and getting an update on current research.

Ian Dadour was besieged by the media when a consignment of 2000 *Geotrupes spiniger* arrived from Canberra. This late spring early summer active dung beetle is the latest beetle to be introduced in the war against bushflies. These beetles will subsequently be released over 10 new sites throughout WA. Anybody on an Ansett flight will notice an article called *Beetlemania* in their inflight magazine (Panorama), which is about the dung beetle program run by Ian and the release of several Spanish dung beetles into the cattle areas of WA. In addition, Ian was recently successful in obtaining \$270,000 funding from **Healthway** to determine if the bush fly is a vector of trachoma and enteric diseases. The research will also incorporate an epidemiological study comparing bush fly numbers with the incidence of these diseases in a number of Aboriginal communities.

The work will be conducted in the Kimberleys and in the eastern Goldfields. A major objective is to release dung beetles in and around these communities in order to control bush fly numbers.

CALM

Janet Farr from the Manjimup office has started gum leaf skeletoniser monitoring in the jarrah forest as well as light trapping of *Tryphocaria acanthocera* (bull's eye borer) for future pheromone testing.

WA Museum

Terry Houston has been busier than a Beirut brickie, thanks to the arrival of a large termitarium from Derby to Perth for exhibition at the WA Museum (see photo below). Thanks to a lot of

logistic support from a variety of corporations and state and local government agencies, and no small amount of blood, sweat and tears shed by Terry and his assistant **Greg Anderson**, an 8 tonne, 2.4 m high mound of the *Spinifex* termite (*Nasutitermes triodiae*) arrived intact in August (a huge collective sigh of relief could be heard from Perth to Derby!). After being impregnated with a hardening compound, the mound was moved into position on the ground floor of the Francis St wing, but was quarantined for several weeks within a swimming pool surround to contain any snakes that might emerge (none did, although several geckoes made nightly forays onto the outside of the mound). The mound forms a static exhibit, its termite inhabitants having been exterminated. A cut section of a smaller mound was also



Terry Houston with "Big Red", the *Spinifex* Termite mound from Derby, WA.
[photo: W.A. Museum]

transported to the Museum to show the intricate internal detail and grass stores but unfortunately, the section arrived fractured and an attempt has to be made to repair the damage and salvage the section for display.

Lately, Terry has become a slave to the Museum's Public Programmes Division, coordinating the setting up of a new permanent exhibition of Australian and exotic butterflies. The R & I Butterfly Gallery, named after its key sponsor, the R & I Bank of Western Australia, is the first gallery to be devoted to insects at the Museum and opened to the public in early November 1993.

In conjunction with the production of the butterfly gallery, several members of the WA Insect Study Group have been busy preparing a book called *"Bring Back the Butterflies - butterfly gardening for Western Australia"*. While publication was expected late in 1993, several unforeseen hitches delayed progress and it is now due to be published by the WA Museum early in 1994.

Recent visitors to the Museum included the following: **Fred and Sarah Gess** from the Albany Museum in Grahamstown, South Africa, visited WA in Sept and Oct to collect and study Hymenoptera, particularly sphecids and masarines; **Don Scambler** and **Max Day** visited in Dec to examine cerambycids and eurytelids respectively.

Murdoch University

Jen McComb and **Stuart Bradley** have received further funding from the ARC for their project on genetic factors influencing insect herbivory in jarrah forest. **Jenny Davis'** freshwater ecology group is commencing several new projects, including: functional asymmetry in wetland invertebrates; a detailed key to WA aquatic invertebrates; and the effects of increasing salinity on Swan River invertebrates. Jenny will be in Alice Springs on study leave for the first half of 1994. **Steve Brooks** has finished his Honours project on the nutrient composition of the instars and colour morphs of the grasshopper *Acrida conica*, and is now hunting entomological employment.

University of Western Australia

The new Zoology Department buildings have been occupied for several months and will be officially opened on 16th April by the Vice-Chancellor, Prof **Fay Gale**. Professor **Darryl**

Gwynne's 6 month stay at the department recently ended and he is now in Auckland completing his 12 months sabbatical.

David COOK
Regional Councillor

OVERSEAS NEWS

NEW ZEALAND

An outbreak of Dutch Elm disease in Napier has hopefully been contained. Six trees were found to be infected with the fungus disease and Forest Research Institute Scientist **John Bain** had carried out a survey to catalogue the entire Dutch Elm population - there are over 5000 trees in the immediate area alone!

DNA samples have been sent to Britain to see if they are the same as the outbreak that occurred in Auckland two years ago. They are hoping they are not because if it is a different strain, then it suggests a separate outbreak.

The fungus is spread by a beetle and is highly lethal, killing trees in about two weeks after it is diagnosed. It has wiped out practically every Dutch elm in Britain.

John TENQUIST
Overseas Correspondent (NZ)

PAPUA NEW GUINEA

The Department of Agriculture and Livestock (DAL) is holding a major consultative seminar at Lae from March 15-17, 1994 on Improvements in the Delivery of Agriculture and Livestock Services to the Farmers. It is expected that the seminar would help DAL to introduce Policy, Institutional and Agricultural Services Reforms. These would include the overhaul of plant protection services.

The Publication Unit of DAL has been re-organized and now has seven (7) positions of scientific officers, including the newly created positions of Principal and Chief Publication Officers. The Unit has also moved into brand new facilities. This has caused delays in the appearance of journals by three months but these are now expected to appear regularly. The latest issue of the PNG Journal of Agriculture, Forestry and Fisheries includes a Catalogue of the Tesseratomidae of the world. Details will appear in the next issue of *Myrmecia*.

Ray KUMAR
Overseas Correspondent (PNG)

NEWS FROM AFFILIATED SOCIETIES

Entomological Society of New South Wales Inc.

This report covers the last half of 1993. Ted Taylor addressed the June meeting on termites in houses. His talk included a discussion of colony detection methods by measuring temperatures within potential colony sites. He also presented a general overview of the pest species of termites in Australia.

Dr Barry Fox was the guest speaker at the August meeting. His topic was "Ants as indicators of changes in the environment". This was one of the most interesting ant talks from the viewpoint of a non-ant person. He had access to a series of sand mined, then rehabilitated sites near the Myall Lakes area that presented a time series of four to eleven years. The species distribution, with species replacement taking place at various time intervals, was fascinating.

The September meeting featured Alan Westcott talking about lepidopterism in Australia - hairy caterpillars and you. He presented a general description of the major lepidopteran families that include larvae with urticating hairs. While most of us know some of them, Alan's talk filled in a lot of gaps.

Lynette Macleod presented a talk entitled "Life in the arid zone - a blowfly's perspective" in October. Lynette was able to provide some excellent data on survival of prepupae during the extremes of winter and summer. Her data on carcase breeding by *Lucilia cuprina*, or lack of it, has provided useful information on field ecology of this fly.

The November meeting featured Murray Fletcher. Like Caesar's Gaul, his talk was divided into three parts. He spoke about his trip to various museums in the UK and his experiences at the 8th International Auchenorrhyncha Congress in Delphi and concluded with an overview of computer generated keys. The demonstration of the DELTA package to develop an illustrated, interactive key was of great interest to the audience, many of whom had not seen the CSIRO CD-ROM interactive key on beetle larvae.

Alan CLIFT
Representative Councillor

Entomological Society of Queensland Inc.

The special lecture series commemorating the Society's 70th Anniversary concluded with an address by Emeritus Professor **Derek Tribe**, Executive Director of the Crawford Fund for International Agricultural Research. His lecture, 'Agriculture, entomology, human progress and survival', was wide ranging and stimulating, and was followed by an extended question time.

The biennial Perkins Memorial Lecture was held in November. Professor **Rhonda Jones** of James Cook University informed and entertained the audience as she discussed 'The care and feeding of entomologists: entomological education, training and employment in a changing environment'. As usual, the meeting was well attended and guests included members of Mr Perkins' family. A sumptuous supper was prepared by Dick Drew's fruit fly group.

The Society's year ended with our traditional December Notes and Exhibits meeting, this year organised and hosted by the CRC for Tropical Pest Management at the University of Queensland. Topics included redback spiders in suburban areas, spider predation in citrus orchards and a new computer-based extension service for farmers.

We look forward to our 71st year and offer good wishes for the New Year to other affiliated Societies and organisations.

Judy KING
Representative Councillor

Entomological Society of Victoria

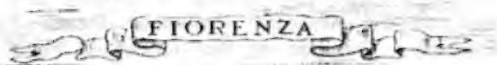
The Society held an excursion in November to The Pines Reserve, a new reserve on the Mornington Peninsula. This is one of the last remaining areas of original heathland. Results were poor, probably due to the weather, but the area looks promising for future visits.

Our December meeting was a Members' Night, with slides and exhibits shown.

The Programme for 1994 has not been decided yet. Society meetings are held on the third Friday of even months at Clunies Ross House, 191 Royal Parade, Parkville at 8pm. Visitors are welcome.

Peter CAWARDINE
Representative Councillor

COMING EVENTS



XX INTERNATIONAL CONGRESS OF ENTOMOLOGY

**Florence (Italy)
August 25 - 31, 1996**

Palazzo dei Congressi

**Information and copies of the registration
form can be obtained from:**

**Organizing Secretariat O.I.C.
Via A. La Marmora, 24
50121 Florence
ITALY
Tel. ++39-55-5000631
Fax ++39-55-5001912**

THE A.J. NICHOLSON CENTENARY MEETING: ON THE FRONTIERS OF POPULATION ECOLOGY

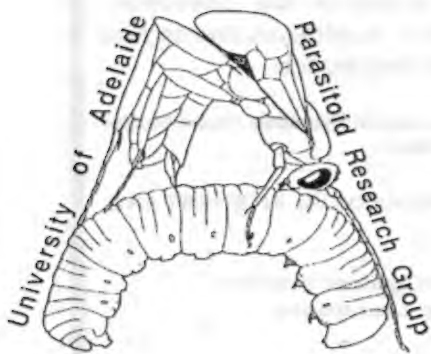
**18-22 April 1995, Canberra,
Australia**

This scientific symposium is a special event to celebrate the birth of A.J. Nicholson (1895-1969) who was Chief of the CSIRO Division of Entomology between 1933 and 1960. It will include presentations on current research on the population ecology of organisms from a broad range of taxa, and from the perspective of theoreticians and applied ecologists.

Further details and First Circular are available from:

Mrs L. Lawrence
CSIRO Division of Entomology
GPO Box 1700
CANBERRA ACT 2601
FAX: (06) 246 400
Tel: (06) 246 4087
email: louisel@ento.csiro.au

Advance Notice



25th AGM & Scientific Conference

The University of Adelaide

24-28th September 1994

Special Conference Symposia

Application of Basic Research to Biological Control

Biology of Social Insects

The Changing Face of Entomological Education

Managing Resistance in Insects

Contributed Scientific Papers and Posters invited for the above symposia and all other areas of entomology (systematics, ecology, behaviour, physiology, molecular biology, applied entomology).

Keynote Speaker: Dr Jeff Waage (Director, International Institute of Biological Control, Imperial College, Silwood Park).

Social Functions: Welcome Drinks Night, Tour of the Southern Vales Wineries, Conference Dinner, Fun Run, Post-Conference Tour to Kangaroo Island.

Insect Photographic Competition: Entries Invited in Black & White; Electron Micrographs and Colour.

Registration Form in the next issue of *Myrmecia*.

For Further Information contact Dr Andy Austin Department of Crop Protection, Waite Campus, The University of Adelaide, P.O. Glen Osmond, S.A. 5064; Ph: 08-303.7265; Fax: 08-379.4095.



Australian Biological Resources Study

The Australian Biological Resources Study through the Participatory Program supports the collection, description and classification of Australian plants and animals, and studies of their distribution.

Applications for support of projects relevant to the 1995 Research Priorities (listed below) are now invited. **Closing Date for Applications: 10 April 1994.**

1995 RESEARCH PRIORITIES FOR GROUPS OF ENTOMOLOGICAL INTEREST ARE:

Arachnida	Acarina: Astigmata
Diplopoda	Family level review
Insecta	Coleoptera: Elmidae; Cerambycidae (generic overview)
	Diptera: larvae, especially Tipulidae; Lauxaniidae
	Lepidoptera: Gelechiidae

Further information on these and research priorities in other fauna groups may be obtained from Dr Jean Just (06) 250 9430.

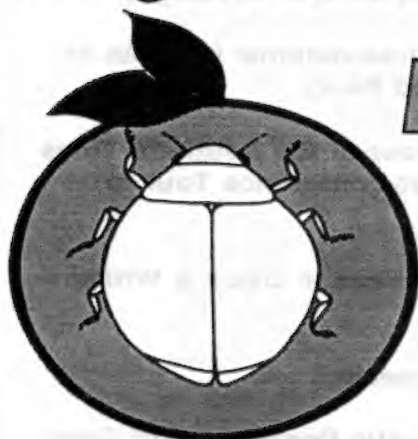
Applications must be submitted on the appropriate forms which are available from administrative offices of research organisations, or the Secretary, ABRS Advisory Committee, GPO Box 636, Canberra, ACT 2601, Telephone: (06) 250 9554.

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- **CRYPTOLAEMUS** – Ladybird beetles for the control of mealybugs.
- **LEPTOMASTIX** – Parasites of mealybugs in citrus and custard apples.
- **APHYTIS** – Parasites of red scale in citrus.
- **LINDORUS** – Ladybird beetle for the control of scale insects.
- **Q FLY LURE** – Salt free attractant for the control of Qld. fruit fly.
- **Q FLY TRAPS** – For monitoring fruit fly numbers.
- **STICKEM** – For non chemical control of ants.
- **YELLOW STICKY TRAPS** – For monitoring & control of whiteflies, thrips and leafhoppers.

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**Call for Nominations
for the 1994 Ian Mackerras Medal
for Excellence in Entomology**



The Executive invites nominations of Society members for the sixth award of the Ian Mackerras Medal, in 1994.

Those wishing to nominate a member for the award of the Medal should bear in mind that:

- (a) Only financial members of the Society who will be under the age of 50 years in September 1994 are eligible for nomination.
- (b) A candidate must be nominated by not fewer than two financial members of the Society.
- (c) Proposers of a candidate shall, not less than six months prior to the Annual General Meeting in September 1994, provide the Secretary with a detailed statement including the candidate's name, date of birth, academic distinctions, relevant appointments and membership of societies, a list of the candidate's more important publications, and a statement of not more than 500 words explaining why the candidate merits this distinction in entomology.
- (d) A Selection Committee for award of the Medal will consist of the President (Convenor) and four senior members of the Society. Nominees or signatories to a nomination are barred from serving on the Selection Committee.
- (e) Should the Committee recommend to the Executive that an award be made, the name of the recipient will be announced and, if possible, the Medal presented during the week of the 25th Annual General Meeting in September 1994.

Nominations are required to be with the Secretary not later than 31 March 1994.

Dr Paul Madge, AES Secretary, c/o Dept of Crop Protection, Waite Campus, University of Adelaide, PO Glen Osmond SA 5064.

SOCIETY NOTICE

Directory of South-West Pacific Entomologists

The Australian Entomological Society Inc. is planning to revise and update its popular publication, Directory of Australian Entomology.

The Executive of the Society is seeking to expand the Directory to include entomologists in all of the South-West Pacific region and, accordingly, change the name of the Directory to "Directory of South-West Pacific Entomologists".

Invitations have been sent to entomologists in Solomon Islands, Tuvalu, Vanuatu, Fiji, Tonga, Western Samoa, American Samoa, New Caledonia, Niue, Cook Islands, Papua New Guinea, Irian Jaya and New Zealand seeking support for the proposed Directory from their respective countries.

We believe that this initiative would increase the usefulness of the Directory and promote entomology and entomologists in the region.

The entries will be in alphabetical order and separated into countries for easy access to names of entomologists.

The Directory will be published in a printed form and consideration is being given to making it available on computer disks. The planned date of completion is by the end of June 1994.

Dr Tom White has agreed to coordinate the production of the Directory.

A form for your details is included with this edition of *Myrmecia*. Each member of the Society is urged to forward completed forms on their details for the Directory to Tom White (at the Society's Executive address) as soon as possible to assist him by spreading the workload - late entries will NOT be included!

We look forward to your support with this publication and thank you in anticipation. We believe that it will be a most useful document to increase the level of communication amongst entomologists in the region; we will also promote the Directory outside of the region.

DELTA

Training Course

A training course on the use of the DELTA Taxonomy System will take place at CSIRO Division of Entomology, Canberra, from 9-12 May, 1994. The course will provide an introduction to the DELTA system, and will cover the main aspects of DELTA usage, including preparation of data files, interactive identification and information retrieval, generation of keys and natural language descriptions.

The course will be run by Mike Dallwitz, Toni Paine, Eric Zurcher and Les Watson.

The fee for the course will be \$550, or \$450 for participants providing their own PCs.

The number of participants is limited to 20, so early registration is advisable.

Expressions of interest in this, or future courses, should be sent to:

Geoff Clarke
CSIRO, Division of Entomology,
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Formation of a new biological control group.

A group of entomologists from Australia and New Zealand have formed a steering committee to launch a new biological control body.

Dr Stephen Goodwin, NSW Agriculture, Gosford Mr Robert Spooner-Hart, University of Western Sydney-Hawkesbury, Richmond, Dr Nick Martin, Food & Crop Research, Auckland, New Zealand and Mr Russell Parker, Queensland Department of Primary Industries, Brisbane, have **established a working group on IPM in greenhouse crops within the IOBC/South East Asian Regional Section (SEARS) and are inviting any persons with a commercial, professional or personal interest in biological control/IPM in greenhouse crops, to join.**

The impetus for the formation of this working group came from a conference on IPM in greenhouse crops conducted by the North American and Western European working groups in California in April last year. An informal discussion to form the new group was held and a formal application was subsequently approved by SEARS.

The working group aims to provide a stimulus, through regular contact by its members and via a newsletter, to promote the development and adoption of IPM in the greenhouse industry in the member countries and to facilitate the frequent exchange of information and progress in research.

The steering committee recently held its inaugural meeting via conference call and resolved to continue until the end of April, when an elected committee representing the member countries of SEARS will be formed to continue the working group and to further develop its activities. In the meantime a newsletter will be prepared and any contributions are welcomed.

Interested parties should contact Dr S. Goodwin, NSW Agriculture, Horticultural Research and Advisory Station, PO Box 581, Gosford 2250, phone; 043 - 481900, fax; 043 - 481910, e-mail; goodwis @ agric.nsw.govt.au., for a membership form.

Membership of the working group is free, additionally non - IOBC members can also obtain a membership form to join IOBC/SEARS, which has a \$US15 fee.

This was a loose insert in this issue

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